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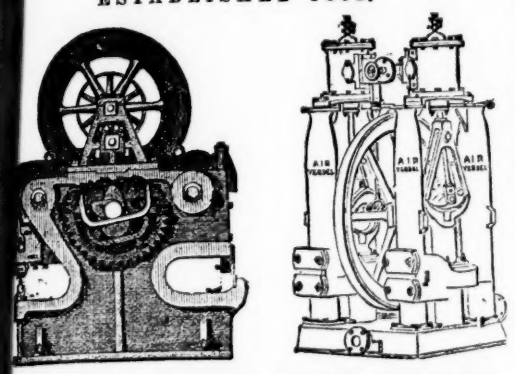

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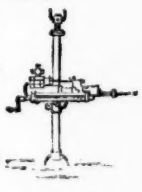

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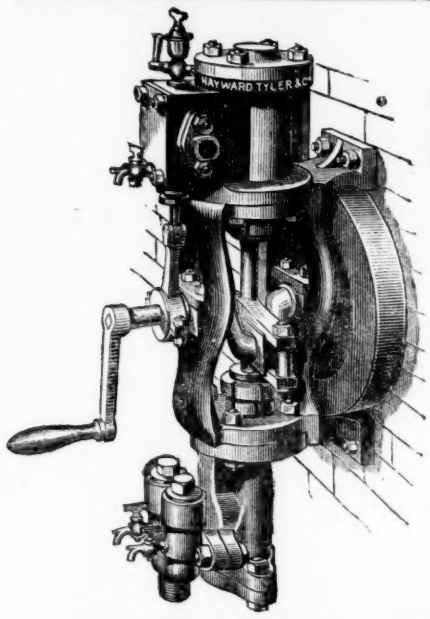

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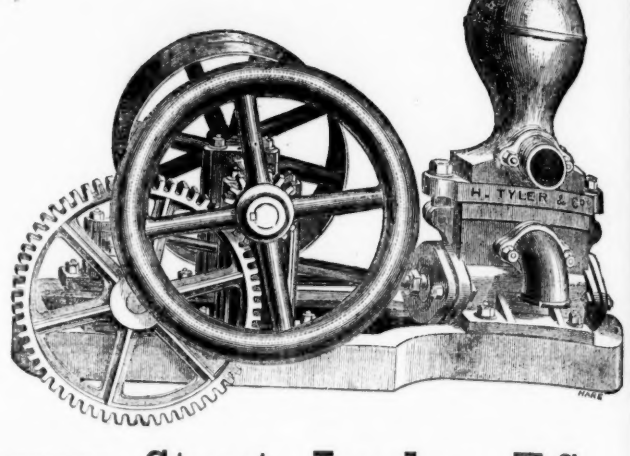

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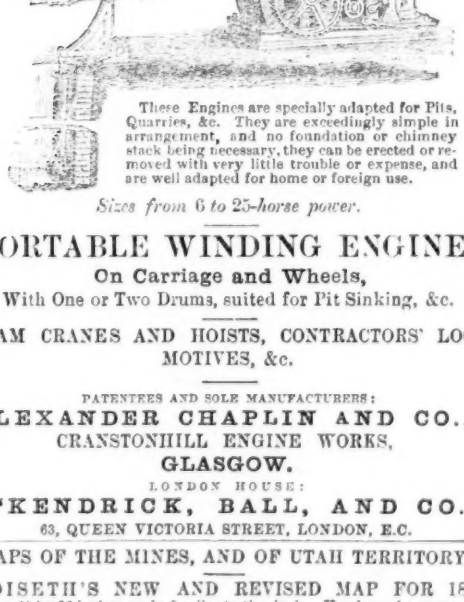

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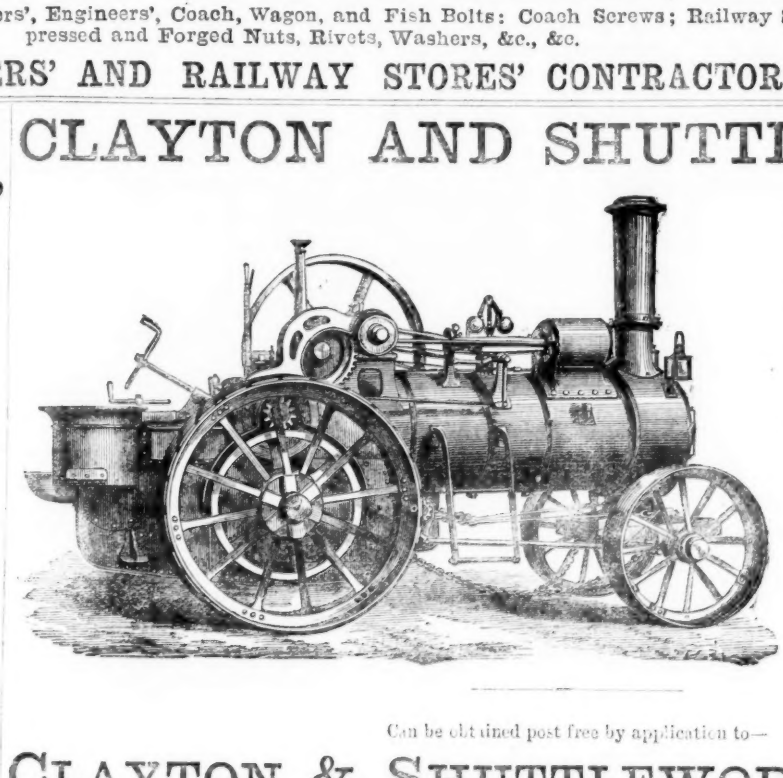

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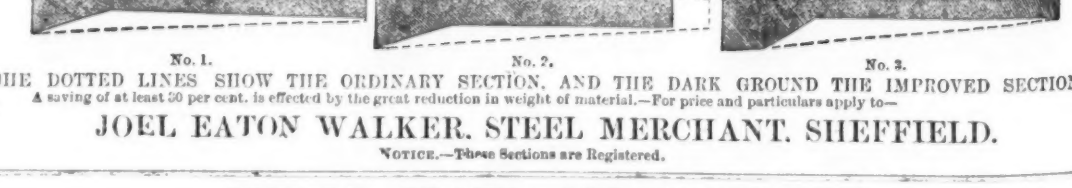

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WASTE OF SMALL COAL—PATENT FUEL—No. I.

SIR,—The subject to which I am about to invite attention is one of growing importance. This is attributable to various causes. 1st. The oft-deplored lamentable waste of small coal or dust capable of being converted into fuel, equal, and sometimes superior, to the large coal with the dust of which it is made.—2d. The great advantage accruing from its capability of being manufactured into the most convenient shape for stowage, a matter of great importance when intended for exportation or ship's use, and the smaller space it is by compression calculated to occupy than an equal weight of coal.—3d. The very important qualifications, when properly made, of being exempt from the terrible liability to spontaneous combustion to which much of the very best steam-giving coal of this country is liable. I do not stay now to dwell on these obviously serious considerations, so generally admitted, because I shall have to touch upon them in the course of the observations I have to offer.

Although coal is fuel in the general acceptation of the term, fuel is not coal, nor is it necessarily made of coal. Fuel is any combustible and heat giving substance, or any agglomeration of coal or other combustible materials. Again, agglomerated fuel, although commonly denominated patent fuel to distinguish it from the natural product of the mine, is not necessarily patent fuel, the agglomerated article being properly called fuel, though not manufactured by any patent processes. Thus we shall have a clear and intelligible distinction without misnomer.

With a view to a clear elucidation of the subject I propose to divide it into five parts, which I will call by the following denominations:—1. Mechanical agglomeration.—2. Rational or scientific agglomeration.—3. Convenience of stowage, &c.—4. Exemption from liability to explosions and spontaneous combustion, with incidental considerations.—5. The export of foreign trade and its natural attendants.

Mechanical agglomeration of fuel may be defined as the mere consolidation of loose materials in hard blocks, irrespective of the quality and nature of the coal employed, the defects it is desirable to remedy or modify, and, in short, the absence of due regard to the efficient duty the fuel is designed to perform. In this mere mechanical process the only two materials in addition to the coal dust that are worth notice are pitch and tar. It would be waste of time to dwell upon the various combinations of farinaceous, mucilaginous, and earthy matters which almost invariably have to seek support from tar and pitch to give them any calorific or consisting properties, and upon which, in fact, they become so entirely dependent that the other materials might as well be dispensed with. They may be a productive source of profit to the Crown in patent fees and stamp duties, but as a rule they have been unproductive to the inventors, unless lucky enough to sell before their uselessness was found out, or a curse to their patrons or unfortunate purchasers, whilst they have assuredly been most injurious to the fuel trade, damaging to its credit both at home and abroad. The promulgation of pretended important new discoveries adroitly managed by adepts at the establishment of companies, and heralded by sensational representations, has found many a victim in the speculative world.

TAR as a means of agglomeration was, I believe, first resorted to at Blanzy, in France, where some 8 or 10 per cent. were used. The coal and tar, when mixed, were heated almost to ignition, and then pressed, but even after this it was found necessary to heat the blocks in order to deprive them (as was pretended) of the oily volatile matters contained in the agglomerating medium, the ostensible object, however, being to deprive the blocks of the disagreeable effluvium and the dense smoke in burning. This process is still pursued by some manufacturers, whom I leave to the enjoyment of it.

PITCH is neither more nor less than tar deprived by dry distillation, as far as practicable, of all volatile matters, whether gaseous or oleaginous. When so used the baking operation may be said to have been resorted to in the first instance. The process may be simple, but the ultimate defects of the fuel remain the same. Pitch has long been used in agglomerating coal. Warlick, of Swansea, appears to have begun it, since which nearly all the manufacturers have used it. It has unquestionably produced hard fuel, and in prosperous times fortunes were made by it, but fortune is no longer propitious, and if she were it does not follow, because it has been almost the only resource, that it was either rational or scientific. Pitch in itself is merely composed of a large percentage of carbon with a small percentage of unextractable hydrocarbon. It adds to coal combustible matter, but does not restore to small coal all the beneficial elements lost by breakage, trituration, or manipulation. It adds to rather than corrects the defects of the coal which forms the basis of the fuel.

The mechanical unfitness and inadequacy of tar and pitch to effect a perfect agglomeration are obvious. They both consume rapidly, and as most of the coal dust used is but ordinary hard steam coal the adhesive properties of tar and pitch are exhausted, and their substance has disappeared before the heat of the fire has had time to ignite the particles of the basic coal which it is intended to hold together for profitable consumption. The result is that the particles no longer cohere when the tar and pitch have flashed out, but fall unconsumed through the bars of the furnace and become mere waste. It is needless here to expatiate further on this system of agglomeration as it will have to be referred to again. Suffice it to say that the cost of it is serious, labour and manipulation amounting to from 5s. to 7s. per ton.

Rational or scientific agglomeration is that which, as regards the quantities and character of the ingredients employed, is governed by the due consideration of the nature of the coal dust to be consolidated, whether anthracite and brittle, gaseous, bituminous, or otherwise, each characteristic demanding a different treatment. The deficiency of any important quality in the coal requires to be remedied as much as possible by the use of corrective ingredients, or any increased quantity thereof, the defectly arises from peculiarity in the composition of the coals, its admixture with impurities in the mine, liability to breakage by trituration in carriage, or the manipulation it is subject to in loading, unloading, &c. In short, scientific agglomeration is that which is calculated to produce fuel made with any kind of ordinary coal, equal to the best quality of the article for the purpose to which it is naturally adapted.

The seams of coal in the mine usually contain more or less of gas, explosive or non-explosive, though sometimes free, and the same may be said of the presence in the same of volatile hydrocarbons, of bitumen, not volatile, but oxydisable by the oxygen of the air. When coal is cut out of the seam a certain amount of small is necessarily produced in the winning of it, attended by the concomitant release of a considerable percentage of highly volatile gases, and a concurrent oxidation and consequent evaporation of a portion of its bituminous properties. When screened at the mouth of the pit more small coal is produced, with similar results, by the tumbling of the large coals into the wagons, and the effect is necessarily continuous during its transit from the pit's mouth to its destination. Coal, in fact, though not all in the same degree, some being much more brittle than others, can scarcely be touched or disturbed without breakage, and the smaller it becomes the greater liberation of its volatile properties. It is the small coal thus produced which it is the province of the fuel manufacturer to utilise by re-construction or re-conversion into solid blocks equal, if not superior, to the large coal itself.

It may startle some persons to hear the expression superior to the large coal from which the dust agglomerated accrues, but a moment's reflection will dissipate such surprise. In the first place, the dust that is set at liberty by breakage and trituration is the mother coal, the purest portion, which leaves behind the framework or skeleton, so to speak, that makes the cinder when burnt; and in the process of breakage from carriage, &c., most of the gases released are deleterious. And whatever valuable properties the coal has lost by such breakage must, as far as possible, be given back or replaced by the use of the agglomerating material, but calculated for the purpose; whilst whatever is, like the highly explosive gases, dangerous must as far as practicable be excluded in the re-construction; it is obvious, therefore, that by due regard to these things fuel may be rendered far superior to the large coal from the debris of which it is manufactured. This is still more obvious with reference to brittle anthracites, which, being peculiarly liable to crumble to dust, and slow to ignite, are rapidly set at liberty by the combustion which destroys the agglomerating medium before it affects them. It has been laid down as a principle that the higher the percentage of carbon in coal the higher is its value as a producer of heat; this may be true if only the latent calorific power is taken into account, but it is necessary to develope this power more or less quickly with reference to the purpose to which the coal is to be applied. There is more latent heat in anthracite than in Silkstone coal, but no one would prefer anthracite to Silkstone for household purposes, merely because it is hard and hot when developed, as it takes a long time to bring its intrinsic calorific power into play. It is the object of rational and scientific agglomeration to reconstruct at will from the dust of steam, household, or other coal, a fuel possessing all the best qualities of the parent seam, and fitted for the purpose to which it is to be applied.

Old Vicarage House, Greenwich. A. VASSARD.

SANDWELL PARK COLLIERY.

SIR,—The Daily Post reports the proceedings of a meeting of this company at the Queen's Hotel, Birmingham, on Tuesday, at which the chairman of the company adverted to their dead rent of 7000*l.* per annum, and, with other great things, stated they should in all probability raise a million tons of coal per year; this would be about 20,000 tons per week on 50 weeks per year, and as five days per week is quite as much as we can ever hope to average, it will be 4000 tons per day, and as eight hours per day is all we can expect to be devoted to raising coal, it will be 500 tons per hour. Do you think Mr. Bennett, the hon. chairman, intended all this? Again, I think we have at Sandwell Park 600 acres of coal, which, being of a very friable character, and reported, if I mistake not, to be about 8 yards thick, will yield on first working about 10,000 tons per acre. This being so, it will give Sandwell Park Colliery Company a short life and a very active one. The writer read the "Arabian Nights" in days gone by, and felt greatly astonished that any man could sit down and make such statements, nor was the surprise scarcely less when the speech of the Chairman came to his notice. I think there must be some mistake, and it may be, if you will kindly insert these few lines, we shall get it corrected. A. B. C.

Birmingham, March 15.

BIRMINGHAM BLAKELEY HALL COLLIERY COMPANY.

SIR,—In answer to the letter of your correspondent, "Isca," in last week's Journal, I beg to inform him that the report he heard as to the colliery being sold for 17,200*l.* is quite correct, though it was valued by Mr. Brunton, of Great George-street, Westminster, at 250,000*l.*; and, to quote his report, "I cannot imagine a property more certain to secure very large and immediate profits to the proprietors." The nominal capital of the company was 220,000*l.*, its real capital 100,000*l.*, issued as debenture bonds, not one farthing having been paid upon the shares—(query) did the trustees know that the shareholders received their shares for nothing? I understand that Mr. Ruben Plant, the largest debenture holder, has entered an action against the trustees to set aside the sale.

A BONDHOLDER.

Birmingham-road, West Bromwich, March 13.

UTILISATION OF SLAG BY GRANULATION.

SIR,—In the *Mining Journal* of March 3 I saw a long communication from "K. E. D." (Altringham) giving a description of an apparatus designed by Mr. Williamson, of Congleton. It will be seen by the enclosed paper, read before the Iron and Steel Institute (this was fully referred to in the Journal at the time of the meeting), that Mr. Williamson is late in the market, his patent being dated May 15, 1876, whilst my patents date back to September, 1872, Mr. Williamson's patent being completely covered by that of 1872, and one or two others by me since that date.

The subjoined article from the Iron Trade Review of Feb. 23 last gives a full report of what is being done at these works, and the number of machines at work for the conversion of slag, to which I must call your correspondent's attention, as it is well known in the trade that I am the first and only one who hold patents for machines for granulating slag. CHARLES WOOD.

Tees Ironworks, Middlesborough, March 12.

MANUFACTURED SLAG.

At the Tees Ironworks, belonging to Messrs. Gilkes, Wilson, Pease, and Co., of Middlesborough, extensive operations are being carried on which have for their object the utilisation of that hitherto waste product—blast-furnace slag, a material which ironmasters not only would give away, but would pay for its being taken off their premises. The huge mounds of slag have been a source of considerable expense to furnace proprietors, and have covered much valuable land round the works which would have otherwise been more profitably utilised. Some of the slag made in the Middlesborough district, it may be mentioned, has been employed in the construction of a breakwater at the mouth of the Tees, training walls in the river, &c., but much is left to be rendered useful. Several attempts have been made to employ the slag profitably, but poor success has attended all the attempts, except those of Mr. Charles Wood, the engineer at the above named works. He has brought his inventions before the manufacturing world through the medium of the Iron and Steel Institute, and, as great interest is taken in their progress, we give some information as to the matters as they now stand. Mr. Wood, we may say, is the only gentleman who has devoted his attention to this branch, and great credit is due to him for his perseverance. He has brought the manufacture to a perfection which is really wonderful, and converted what was a worthless substance into a source of profit. The machines themselves we need not describe, as they have more than once been fully alluded to in our columns. Mr. Wood's last invention is an apparatus for the production of slag wool, or silicate cotton as it is sometimes called. The slag wool, which is produced by blowing steam through the slag as it issues from the furnace, is now being extensively used for covering steam-boilers, and the Admiralty receive a large quantity for this purpose. The wool is made into a sort of mattrass, which is laid upon the boiler, and is said to be superior to the boiler coating compositions, which cost much more. Being a mineral substance it possesses when used for this purpose an advantage over cotton felt, hair, or other animal or vegetable substance, in being exempt from decay, whether caused by high temperature (it being perfectly incombustible), leakages of steam, water, or oil. It is made of two qualities, and the finer of the two is of such a beautifully white texture that nine persons out of ten would not know it from cotton wool. The house in which this is manufactured presents the appearance of a yard in the depth of winter; the screens, rafters, walls, &c., are covered with the wool to a considerable thickness, and seem as if coated with snow of the purest kind. The discontented mortals who, in one of our comic contemporaries, were represented as being dissatisfied with our present open winters and took to manufacturing winters of their own by means of cotton wool, might well have used this slag wool, for it is of a more snowy white than cotton wool. The uses for which this wool may be made applicable are only beginning to be realised. The latest is that it shall be employed in lining coffins, and we are informed by the inventor that some doctors have proposed to use it instead of steel filings for the cure of tape-worms.

Mr. Wood has two rotary slag shingle tables, and altogether they have made over 40,000 tons of shingle, which is extensively applied in the district for the manufacture of concrete, and several footpaths in the neighbourhood of Middlesborough are covered with it.

The most important manufacture, however, is that of slag sand. Mr. Wood has three machines erected in front of three furnaces, and each of them is capable of converting the whole of the slag produced by the furnace to which it is attached, but the apparatus are only worked when there is a demand for the sand. The Cleveland Slag Working Company (Limited) who have their establishment close to the Tees Ironworks, where the machines are located, take the greatest part of the sand, which they manufacture into bricks, cement, mortar, and concrete. The slag works themselves are wholly constructed of the concrete and cement, the walls being nearly 80 ft. in height. The contractors for the new railway station at Middlesborough have used the slag mortar externally, and the slag cement and concrete for all the foundations, and we may also mention that the cement and concrete are now being employed in the construction of the large new gas tank near the goods station at Middlesborough. The slag cement and concrete have proved so good that the Town Council have given them the preference over Portland cement concrete for the completion of the work. The slag bricks are now being largely used for house building. The Slag Company during last year turned out close upon two million bricks made from the slag sand. The company for two years have been hard at work experimenting, but are now getting through all their difficulties, and the directors hope that this year they will be able to pay a good dividend to the shareholders, notwithstanding that the capital is very large. Hitherto the capital and revenue have been chiefly devoted to experimenting, but now the business is increasing month by month, and if this improved demand for bricks and cement should be maintained, as there is evidence that it will, the future of the company is assured.

Mr. Wood is still industriously working out the problem of further utilising the slag from the blast-furnace, and doubtless he will again surprise the trade. Certainly he has proved beyond a doubt that slag can be profitably employed in many ways, and that where others have failed he has, by means of his ingenious machines, succeeded, and, by dealing with the molten slag as it flows from the furnace, has produced a number of useful and cheap materials which are now successfully competing even with the cheap building materials of the Middlesborough district, and the large quantities of the products at present being made and disposed of fully confirm this.

THE MINERALOGICAL SOCIETY.

SIR,—A paragraph in the *Mining Journal* of the 3rd inst., intended to correct an error, is, in my opinion, full of inaccuracies. In the first place, the honour of having started the Mineralogical Society belongs to Mr. J. H. Collins, F.G.S., Public Analyst for the county of Cornwall, for without him I do not believe that the society would have been organised. It is quite probable that many people for several years have had the idea that a mineralogical society would be a good thing, but Mr. J. H. Collins was the first to carry the idea into effect. I do not know Mr. Readwin, but I scarcely think he can wish anyone but Mr. Collins to be looked upon as the founder of the society. In the second place, I have great doubts whether the Mineralogical Society will ever be absorbed by the Geological Society, as there is plenty of work for both. If any amalgamation is to be made let the Crystallological and Mineralogical Socities be united; I believe the union would be advantageous to both societies.

PALMAM QUI MERUIT FERAT.

OUTLINES OF GEOLOGY—No. VI.

SIR,—From the study of geology many wonderful phenomena have been brought to light. The constitution of the interior of the earth is but little known even at the present time; we know, however, that the land is now above the sea in many parts of the earth, not, perhaps, from any change in the level of the waters, but from elevation of the land. Owing to forces in operation in the earth's interior the land has thus been raised many times. On the western flanks of Snowdon, in North Wales, and in other parts of the coast of Wales, Devon, and Cornwall, raised beaches are found, those near Snowdon being from 1100 to 1400 ft. above the present sea level, and containing recent marine shells. The earth's crust in cooling and contracting from a condition of great heat before the primary period produced elevations and depressions on its surface, which have been again altered by subsequent internal disturbing forces up to the present time, both in the way of gradual elevations and gradual depressions. Even now these forces are at work, volcanic islands are formed partly by the rising of their base from subterraneous force, also from the discharge of lava from their craters.

Volcanic disturbances have been occurring in all time with great intensity and frequency, both in the primary and secondary periods, still intense in the tertiary period. Even now earthquakes have been calculated to occur at the rate of 100 in a year all over the world, showing considerable volcanic activity still existing. It has been stated already that the whole of the stratified rocks have been formed principally under the sea, so that the elevation of these rocks subsequently to the height of the Alps, the Andes, and the Himalayas, must have been the result of some mighty force; the Jurassic strata of the Alps, it is probable, have been lifted in the tertiary period; the Pennine chain in England in the secondary period, and the beach, near Snowdon, has been raised 1100 feet in a recent period.

The deposition of the boulder clay, referred to in last letter, has been followed by its submergence; on the clay has been laid a marine deposit, called the glacial drift, in which are found shells similar to those of creatures now living in Arctic regions, of bivalves, Astarte borealis, cardium edule, cyprina islandica, Leda oblonga; of gasteropods, Scalaria greenlandica, Dentalium entalis, &c.

The climate must consequently have been subject to much variation, for in the valleys of North Wales there are the usual indications of old glaciers, as grooved and striated rocks, *moutonées*, perched stones, and moraines, at various heights, indicating their gradual decline from the glacial to a more recent period. The valleys in the Alps of Switzerland, in which glaciers still exist, have been during the ice period the channels for immense glaciers, or ice-rivers, as denoted by moraines, and striations on rocks, that are still preserved as evidence of their action. In the Himalaya valleys glaciers seem to have extended some 5000 ft. below their present level, or 9000 ft. above the sea, and further proof of the extension of glaciers in the ice period is obtained from the valleys of New Zealand, where glaciers still exist. The Alpine glaciers are from 10 to 20 miles in length, and often 1 mile in breadth, they move generally at the rate of 12 in. in a day, two uniting sometimes to form one glacier, as with water. Glaciers leave in their track, or at their terminus, pieces of rock brought down with the ice, these are called lateral and terminal moraines, the latter are frequently carried off by the action of water as the ice melts, and thus in many cases are not found in this position.

It would appear that the climate nearly all over the world must have been cold during the glacial period. In our country there was a climate similar to that of Greenland of the present day, where the glaciers never melt, but fall into the sea, and are floated away as icebergs; the whole surface of the land being also covered in winter by ice, which moves over the slanting ground.

In the Arctic Regions fossilised plants are found of the same species now growing in temperate climates, it is inferred from this, and from the condition of European and other countries during the ice period, that the polarity of the earth has been subject to variation, it may be, by the transfer of matter by volcanic upheavals from one position to another. It seems improbable that these plants would have grown unless under the influence of heat and light, so requisite for them in temperate climates.

Granite, the base of all other rocks, is sometimes found above them, and at a considerable elevation. The granite may have been upheaved into that elevation before the deposition of the primary rocks, or it may have been upheaved after the primary rocks were deposited upon it, the whole being elevated together. Subsequent denudation of the primary rocks would lay bare the elevated granite, as seen in the hills of Scotland at the present time; the latter supposition involves the operation not only of vast subterraneous force, but also of immense denudation of primary rocks, which we can hardly conceive as possible to be accomplished.

The Falls of Niagara may be cited as an instance of the power of water in wearing rocks. The ravine formed by these falls is seven miles in length, from 200 to 400 yards wide, and from 200 to 300 ft. deep. At the present rate of progress in the wearing away of the rock it would require a space of 35,000 years to form this channel of seven miles in length.

The age of all rocks may be known from the order of superposition, but this can more correctly be determined by the fossilised plants and animals they contain. The stratified rocks show successively the advancement in the scale of life—first simple organisms occur,

then fish, then reptiles, birds, and mammals. The principal fossilised animals are aquatic, most of them marine shell fish and fishes, then reptiles which lived partly in water, as those of the lias, then there are remains of birds and mammals, these being comparatively rare, as being less likely to be entombed in the muds forming sedimentary rocks. It is not until the cave period that there is evidence of man's existence; traces of him are found contemporaneously with the bones of animals found in caves and in the river gravel terraces of the same age. Flint knives, arrow heads, and hatchets are found with the bones of the extinct mammoth and cave bear; his bones have also been found on the Continent along with those of the mammoth and other extinct animals.—*March* 12. M. B. G.

THE MINING INTERESTS.

SIR,—"Capital and labour"—or, in other words, "money and time"—are indelibly associated together. Whenever these become divorced there arises distrust, panic, with subsequent confusion and stagnation. "Time," in political, social, and commercial economy is equally valuable with "money," so likewise in successful enterprise time is an essential element important and indispensable as capital. Procrastination in prolonging costs of maintenance, with standing charges, cripples more industries than even niggardly subscription of capital, or any other obstructive element which bears upon the questions of the productive use of money and remunerative application of the sinews of labour, while probably in no single "department" is this combination so keenly felt—nay, absolutely necessary—as in the case of mining. It is true that there are risks and hazards allied with all trades and commercial pursuits, whether it be manufacture, engineering, building, shipping, or banking, insurance, constructive undertakings, and mining. They each and all combine the chances of failure alike with those of success, while in respect to mining the very character and nature of the occupation render it subject to losses as well as gains, or otherwise we should never have secured such substantial and brilliant prizes upon comparatively small expenditures as have from time to time fascinated the greed, and stimulated the industry of mankind.

We may take for examples the Wheal Friendship and the Devon Great Consols east of the Tamar; South, West, and East Caradon near Liskeard; Par, Fowey, and Lanescot near St. Austell; Tresavean, Buller, South, West, East, and North Bassets, with Penstruthal and Cathedral, to the south of Carn Brea; then, again, Carn Brea, Tincroft, Cook's Kitchen, and Dolcoath directly north of the Hills, nor should we have had the hundreds of other great and important prizes that extend from thence to the Botallack and Levant, at Cape Cornwall, and which are highly productive, even under the waters of the broad Atlantic. Again, we have in Wales, Scotland, Isle of Man, and in Yorkshire, Durham, Cumberland, and Westmoreland great and profitable lead mines, which not only enrich the possessors, but employ tens of thousands of hard-working and deserving miners, adding materially to the wealth of the nation through increased trade and commerce springing therefrom. In mining of late years the risks and hazards have been reduced to a minimum standard, the arts and the sciences, coupled with practical skill and experience, have done much to unravel the mysteries of the laws of Nature, and we now can detect with far greater certainty than formerly those vaults and chambers of the mineral wealth contained in lodes and veins traversing our chief and recognised mining districts, and from which the hidden ores can be unearthed in paying and remunerative quantities. Hence there are no more risks associated with practical mining than with any other branch of the speculative industries of the country. We, therefore, again state that that which is of vital, paramount, and first importance to successful mining is the happy combination of economy in time, aided with and assisted by ample and paid up capital, thence to develope the workings with practical rapidity and dispatch. Thus alone can the maximum of gain become acquired through the reduction of costs of maintainance and standing charges. These have proved heavy burdens in many cases, and in instances ended in grief, when under more favourable circumstances the very reverse would have transpired.

We are led to make these observations in order to introduce to the notice of your readers the very favourable position of the Van Consols, Cathedral, and Penstruthal Mines. The first is to the west of the Van, which yielded 51,000*l.* dividends last year, and the two latter are copper mines in Cornwall, possessing the true elements of success, while we feel convinced that the following description of their merits will convince all who reflect thereon that the future is fraught with unusual chances of gains combined with minimum risks. The Van Consols has now become an established success. The new shaft from surface has been sunk 90 fathoms into the very heart of a course of rich lead ore. The lode is so wide that to develope it rapidly, and with practical efficiency, it is necessary to extend two levels on its course westward—side by side; both of these ends contain rich lead ore, yet the true value of the lode is still undetermined. This shaft took upwards of two years to complete, hence investors at the present time reap the double advantage of economy in time and money—desiderata of first moment in successful mining. The development of the Van, which stands to the east, is the wonder as well as the prize of modern mining. Since 1869, when prospects were good, yet scarcely superior to Van Consols. The dividends were for the first year 12,000*l.*, but then 4000*l.* worth of ore rested on the bank—all costs paid. A further subscription of capital (20,250*l.*) became necessary to erect machinery and to open out ground; thence the dividends continued gradually to augment, until for 1876 they became 51,000*l.*, with strong prospects of still further advance. The lode at Van Consols is now penetrated to a depth at which large deposits of lead are found to exist. The shaft is in its right position, and is in perfect working order. Efficient machinery is erected, and most of the dead work done invariably associated with the development of a permanently large and profitable mine. Keeping these cardinal points in view, the local manager has only to sink another 10 fm. level during the current year, and to cut open the lode with practical dispatch westward, to secure a mine that promises equal growth and wealth with the Van, standing to the east. We may add, in conclusion, that the remarks of "Veras," of Liverpool, in last week's Journal were both sound and practical, and accord thoroughly with our views on the philosophy of the economy of "time" in mining pursuits and undertakings.

Penstruthal adjoins the Tresavean; this latter mine, three times rich became three times abandoned, yet the last company upon a capital of 3120*l.* divided gains of 449,064*l.* Buller also adjoins the Penstruthal, and was abandoned as worthless, yet a few pounds discovered its wealth, and on a capital of 5*l.* per share only the market price advanced to 1050*l.*, and in a few years dividends of 920*l.* were declared. The Penstruthal, after proving a brilliant success and declaring dividends of 130,000*l.* from one deposit of ore, became also abandoned, and it was reserved for the present company to re-work the mine and develope the numerous parallel lodes known to traverse the grant, and which are now proved to be highly charged with both copper and tin, requiring only a small further expenditure in time and money to mature operations, and to render the workings highly productive and remunerative. Thus this mine is just in that position when investors can embark with advantage. Years in time have been devoted to sinking shafts and opening out levels to a depth necessary to secure success, and now is the time when these vaults and chambers of mineral wealth are about to become developed, and reward the patient and persevering shareholders for their industry and outlay. The mine possesses all the elements essential to success, the requisite machinery is erected, the bulk of the work is done, the veins are numerous, and ample capital remains to realise profitable results.

Again, the Cathedral is in a forward stage of development. The machinery erected is capable of draining the water to a still further depth, and to allow of the lodes being extensively opened out both east and west. The shaft has passed through a splendid, rich, and crystalised deposit of "gossan"—a certain indication of copper ore below—and from thence 35 fathoms through one continuous course of ore that yielded from the shaft alone some 4000*l.* worth of copper. A level is now being driven (65) on the course of the lode, which continues good, equally with the shaft itself, and what is most important for investors to know are the facts that the shaft is in its proper position—about midway between two cross-courses—70 fathoms apart. Hence experts conclude that the one discovered is at least 70 fathoms in length; to say nothing of expected discoveries at the east and west of the two cross-courses referred to.

81, *Bishopsgate street Within, March* 16. R. TREDINNICK,
Dealer in Stocks and Shares.

RICHMOND MINING COMPANY.

SIR,—Our directors have at length favoured us with some information as to the suit with the Eureka Company, by which it appears that the little Western Question is becoming almost as complicated as the great Eastern one. They also announce the defection of Mr. Corrigan, which, in my opinion, may be looked upon as rather a gain than a loss. In addition to which they give some information respecting the dividend. This is as it should be, so far as it goes, and is, I hope, only the commencement of a new policy on the part of the directors, which for convenience I will designate as a mutual confidence policy, and which, if they will fully carry out, I shall be as ready to praise as I have been to blame the opposite, for there can be no real confidence between two different parties unless it is mutual, which I cannot think our directors can be so blind as not to perceive, for it has been in a great measure that want of mutual confidence, coupled with the apparent desire to withhold information, which has produced among shareholders that great decline of confidence in the directors of the Richmond Mining Company.—*March* 15. COMMON SENSE.

RICHMOND MINING COMPANY.

SIR,—I beg to inform your correspondent, "Common Sense," that I am not the writer of the letter alluding to the Eureka suit. I am in possession of good information from the mine, which prompted me to warn the shareholders not to part at present low prices; but to have some patience and wait for the rise, which is not very distant. If your correspondent requires answers to questions as "the officials jobbing in the shares," and "directors witholding information from shareholders," he, as a *bona fide* shareholder, can address his questions to the parties complained of. A friend who holds nearly 200 shares tells me he has no difficulty when in town of getting information at the office, and surely what my friend can do "Common Sense" will not find it difficult to follow. I think the notion of an American management of the mine hardly tallies with the feelings of English bondholders in American railways; and, again, if St. John del Rey Mine, at a distance of some 10,000 miles from its directors, can be well managed, why not Richmond? That our directors might and ought to put shareholders more at ease cannot be denied. We see week after week great returns of ore, representing thousands of pounds profit, and no reason given for not dividing it. Shareholders must necessarily be uneasy, and the longer they are left in the dark so much the worse is it for those who do know, simply because the market quotations will sympathise with this disquiet feeling. In a former letter I said that half the time of the office would be taken up attending to the "bears," but the time has now arrived when shareholders should know how their case stands with the Eureka Company. We do not ask to know anything of the value of the property—that is assured. It is now a question of "bear" *versus* shareholder.

Personally I have great respect for our secretary and Chairman, and feel that they ought not unnecessarily to subject themselves to receive such dirty missiles as we have seen thrown for some time past.

A SHAREHOLDER.

THE NEW ELDORADO.

SIR,—The recent discoveries of gold in the Black Hills cause a great excitement among the fortune seekers of this country, and I dare say it has affected some of my fellow-countrymen in the old country, and they are saying to themselves long before now—"Black Hills or skat, when it comes spring." I dare say those contemplating coming, and other readers of your paper, would be interested in anything from the Black Hills. I suppose the route and cost of coming would be an object to some. At present there are several routes, but the two principal ones from the Union Pacific Railroad to Deadwood City *via* Custer (the two principal places of note in the Hills at present), is Sidney, Nebraska, and Cheyenne, Wyoming. From Cheyenne the stage leaves twice a week for Deadwood City; fare, $50, time 5 days. Passengers are allowed 25 lbs. of baggage, all extra you have to pay 20 cents per pound for. Meals on the road, $1 a meal. Sidney, Nebraska, is nearer New York, and the stage route shorter by 70 miles, but the stage at present runs irregular. The fare by this route is $35. Cheyenne is 300 miles from Deadwood, and Sidney 230. Custer City at present is very dull; in fact, there is nothing doing in the immediate vicinity of Custer, so most people come right through to Deadwood, and there take their bearings. About 25 miles from Custer, on Battle Creek, it is reported they have diggings that will pay from $6 to $10 to the hand a day. Castle Creek is 20 miles from Custer, 35 from here; it is reported this last few days that they have struck it rich there. The fact is there is gold in all the creeks, more or less, but it seems to be spotted. Some creeks are hard to work on account of deep diggings and lots of water to contend with. It will take capital to open them up. As yet there are no capitalists here; everything is owned by poor men. In other creeks and gulches there is a scarcity of water. The placer mines, on Deadwood Creek, are no doubt good diggings, and the gold easily taken out for two or three miles in length. But wherever gold has been found in paying quantities the ground is all located and staked off for miles around. At present there is very little or nothing doing in the placer mines, as there is 2½ ft. of snow on the ground, and very cold weather. Deadwood gulch and others leading to it are well populated. There are hundreds of cabins all occupied by men waiting for spring and fine weather. At Gayville, two miles from Deadwood, there are several quartz mines working, but not employing any force of men, there being from two to four men working in a mine. There are no mills here yet to amount to anything. One ten-stamp mill is running on the Alpha ore; crushing capacity about 5 tons a-day. Other mines are working their quartz with arastras; in fact, a good ten-stamp mill would crush more rock than all the crushers that they have in operation here at present. It is the opinion of some that there are no leads here—nothing but deposits. In every new country a man will see some new feature regarding veins and vein matter, and, of course, there has not been work enough done yet to prove whether the leads discovered are fissure veins or not, but it is my opinion they are mammouth veins some 50 ft. wide. There is no doubt that the mines, as far as prosecuted, are very rich. Some I could go in and see; others no one was allowed inside without permission. On one there was a notice posted which read, "Don't trespass or you will be shot." Another one read this way: "No admittance. A warning.—There is a shot gun set in the tunnel." The Hidden Treasure, Aurora, and Laura, on one vein, are no doubt good mines. The Alpha, and another one adjoining on the Woolsey Lead, are very rich, the gold being course. The Home stake and Golden Star, on another vein at Leeds City, a mile from Gayville, are reported taking out $50 rock from a vein 50 ft. wide; still, I think there is a little allowance to be made in that report. There are a good many prospecting for veins, and prospecting veins that have been struck, and I have no doubt but that there will be other good mines struck ere long.

At present the Black Hills are recognised by the United States Government only as an Indian Reservation. The mail comes in by express, and we have to pay 10 cents for each letter received. The Indians are not troublesome, but on the road here from the railroad they are very apt to be seen; so eveybody coming here arm themselves with rifles and six-shooters. In case of emergency they might need them, as these Indians never fail to kill a white man if they get the least chance. They are all well armed with the best rifles and plenty of ammunition. On our journey here there was a freight train of five wagons a day's journey ahead of us, loaded with flour. The Indians killed two of the teamsters, riddled their wagons and bodies with bullets, and cut them up horribly with an axe. They emptied the flour on the ground and carried away the sacks—it was supposed for clothing and shelter. They were supposed to be part of Dull Hand's band, who were scattered, and their lodges captured by McKenzie. It is most likely as soon as spring comes they will be on the road murdering and committing depredations as heretofore.

My advice to parties contemplating is not to come unless you have money enough to keep you for some length of time after your arrival, as there are hundreds here waiting till spring comes for work; some are very hard up, having enough to do to get grub till such time as they can get work. It is calculated that 50,000 people will come to the Hills next summer; there may be a few lucky ones, but them will be a lot disappointed.

Provisions and everything else are very high. Flour is 12 cents per pound; potatoes, 25 cents; bacon, 25 to 28; beef, 15 to 25; butter, 50 to 60 cents per pound; mollasses, $3 a gallon; and everything else in proportion, so it will cost a man a good deal to live here. All disputes about claims and boundaries are settled at present by calling miners' meetings. THOMAS H. WHITE.

Deadwood City, Dakota Territory.

— *Royal Cornwall Gazette.*

SLIME DRESSING.

SIR,—It is very doubtful if the adoption of Mr. Absalom Francis's suggestion, in the Supplement to last week's Journal, would be any improvement upon the buddle now in general use. That a round buddle for slimes should have a pretty large diameter in order that the particles of ore and matrix in suspension should have time and space to settle in the order of their specific gravities is a matter of course, but that a buddle of 60 ft. diameter would make the separation so complete as to render the head pit for the dolly-tub and the tailings free from ore in one operation may well be doubted, seeing how little the lighter and more dradgy portions of the ore differ in density from the gangue or waste. Mr. Francis himself seems to doubt if one operation would suffice, and goes on to propose that if the head be not good enough for the dolly-tub let it be buddled again; and if the tailings are not poor enough, let them be buddled once more. Now, this is precisely what happens every day in the treatment of ordinary slimes in buddles of the ordinary size, so that if the 60-ft. buddle does not effect the complete separation desired there would be only extra cost and great waste of space in adopting it. Waste of space most certainly, because such a buddle would occupy as much space as four buddles of 30 ft. diameter (large enough, surely, for any purpose), and as much space as buddles of 24 ft. diameter (a very good size for a buddle), and no one, I presume, would deny that the end sought could be far more practically attained by the four or by the six buddles. Such a direct separation as Mr. A. Francis aims at is, however, worth striving after, and I trust he will eventually succeed in devising a plan to prevent the loss of "fine lead now being carried into the sea" in his county, although I would charitably hope that he is not in earnest in wishing to "put an end to the Red River dressers." GLUCK AUF.

March 12.

BEDFORD UNITED MINING COMPANY.

SIR,—I have read the account of the meeting of this mine, held on March 6, which appeared in last week's Journal, and also the resolutions passed thereat, from which I find that a house for the manager is to be provided, which means a considerable outlay, and which I understand was not contemplated when the manager was appointed. I do not look with favour upon the resolution requiring the manager to sign all cost-sheets, believing the experienced agent, acting on his behalf, and who the secretary says has the whole charge of the mine, to be the proper party to do so during the manager's unavoidable absence from the mine. I also notice that it is intended to appoint a storekeeper, which will simply add to what is already generally considered a mine much too heavily taxed for its management. Economy certainly could never have suggested such an idea—having two resident agents and purser for a mine of so limited an extent, surely the duties of storekeeper could be attended to by one or other of these officers. I, therefore, venture to suggest to the committee that no extra outlay be incurred until after the next meeting, which should be held on the mine in order that the views of the local shareholders may be fully expressed thereon. I contend that during these depressed times we should be very careful and considerate towards the shareholders, many of whom find great difficulty in responding to the heavy calls made at the meeting, and that no additional outlay should be incurred for the present, or until it is proved that the rich lode in the shaft continues to the next level as predicted by the agents, and that the Bridge lode is found to be the best in the sett, as stated by the secretary, by doing which I believe it will conduce to bring this now promising mine more into public favour, which is very desirable, and the earnest wish of a—

March 14. COMMON SENSE SHAREHOLDER.

BEDFORD UNITED.

SIR,—I can hardly conceive it possible that it is intended to appoint a storekeeper to this mine, as gathered from your report of the meeting which appeared in the *Mining Journal* of last week, and thus increase the cost of management—already too well known locally to be excessive. This and the intended outlay for manager's house will no doubt serve to annoy shareholders, and so swell the number of forfeited shares, which it would seem is as much the study of the committee and secretary as to see the mine worked with a proper regard for economy. I may mention there is a mine not far from here returning over double the quantity of ores, and paying about double the monthly costs, and conducted as well as any mine in Devon or Cornwall at considerably less costs for its management than is paid at Bedford United Mine, which is a matter that ought not longer to be overlooked, seeing that heavy calls are so frequently made on the unfortunate shareholders. I should like to know why the meetings are not held on the mine sometimes, which would be only fair to the local shareholders, as I am told there are a large number of shares held by parties residing near the mine. A LOCAL SHAREHOLDER.

Gunnislake, March 15.

WEST CHIVERTON, AND NEW MACHINERY.

SIR,—In last week's Journal Captain Southey appears to take umbrage at my remarks on the improved machinery at the above mine in the Journal of the 3rd inst. I beg to assure him those insinuations, as he is pleased to denominate them, were given with the best intentions as a warning hint not only to himself but to others who might be disposed to follow him in what I will not yet call a "piratical path;" but will, with your permission, avail myself of a small space for stating my reasons for calling his attention, and that of the mining public generally, to the fact that classifying machinery for the treatment of minerals is at present covered by patent, and is the exclusive commercial property of the Glasgow Company, and that to copy this without their express permission is a direct infringement of their patented rights. In reference to the process of this company, Letters Patent (see Specification No. 158, Green's Improvement in Separating Ores, 1871) secure to their exclusive right "to the arranging and working a series of riddles (sieves) with meshes or perforations of different sizes." Comparing this with Mr. Hocking, jun., statement ascribing the successful results of the West Chiverton machinery to the operation of "sieves of different sizes," I fail to recognise so distinct a difference as Capt. Southey would obviously wish your readers to believe exists between the arrangement he saw in Wales and the improvements he eventually adopted. Mr. Hocking's description of these improvements at the mine meeting recently held is equally correct of the fundamental process of the Glasgow Company's system. The special feature of their dressing-floors for which they have sought and obtained lawful monopoly, and to which is mainly due the great success attained by them in the separation of ores, is the identical process by which, according to Mr. Hocking, the West Chiverton machinery has produced such satisfactory results. This being so I trust the majority of your readers will consider me justified in bringing the subject before their notice, as to be forewarned is to be forearmed. By means of the great assiduity displayed by certain people in blowing their own trumpet the West Chiverton improvements have been given so much publicity that many mining gentlemen will undoubtedly be led to visit and inspect them, with the view of adopting similar improvements at their own works. It may be well, therefore, to put these on their guard.

It does not signify so much Capt. Southey stating that he saw

nothing in his visit to Wales that he would either adopt or reject, as it would his explaining what was uttered at the meeting above alluded to, and how the flattering success attending the treatment of his second-class ores followed so closely on his return from Wales. We have his statement that the jiggers were in operation at West Chiverton long before his visit, but we have not heard of any unusual achievements by them until after. The jiggers themselves are no innovation—in fact, are comparatively old—and after all are not so remarkably different from the old-fashioned hand jigger, either in operation or result. It is only in combination with classifying machinery (sieves of different sizes), as arranged by the Glasgow Company that they have achieved such admirable results as have now led to their extensive adoption both in this country and abroad, and it is to be feared have in some instances excited the cupidity of would-be mining celebrities. ——— SPECTATOR.

PARYS MOUNTAIN MINING COMPANY.

SIR,—Allow me, through the medium of your valuable Journal, to ask what the directors and others responsible for the management of the Parys Mountain Mining Company are doing? I always understood that the concern was rehabilitated for the express purpose of getting under the great open-cast, and that to that purpose both the money of the adventurers and the attention of the management would be directed. A very large amount of money has been expended, and much time, and yet we appear to be as far off cutting the anticipated lodes and reaching the open-cast as ever. Surely the time has come when the shareholders of this property should demand some explanation, and, if necessary, make radical changes in the management of the mine. I should like to hear some explanation—1. Why does the cross-cut progress so slowly?—2. Why has so much time and money been expended in opening ground which is not only unprofitable in itself, but which is really using up the money which should have been employed in the vigorous prosecution of the cross-cut south? What are the practical measures to be adopted towards this end I leave to those who are more acquainted with underground work to point out, and if necessary to urge upon the directors. ——— QUID PRO QUO.

VAN CONSOLS LEAD MINING COMPANY.

SIR,—As "Investor" says in last week's Journal, "the considerable interest manifest in the shares of lead mines surrounding the great Van Mine, of Llanidloes, may be taken as an accepted fact that public attention is at last called to the great merits of some of the large undertakings adjacent to the above." I mention also Van Consols as, perhaps, claiming the first merits. The sinking of Murray's shaft is a matter of great interest, especially as it is now in a very fine course of ore, and the fact of the great Van Mine holding rich as depth has increased clearly shows that Van Consols, with the identical stratification of ground, and enormous deposits of lead ore discovered, will prove equally lasting. No expert in mining is needed to declare this. Such deposits of barytes as are found in Van Consols are certain indications of masses of ore below. That barytes in the Van district hugs the lead is a proverb yet to be disproved. The short time needed to open on the masses of ore already found in Van Consols renders its early success a certainty.
——— ANOTHER INVESTOR.

"BARNARDIAN RHAPSODIES."

SIR,—After all the haphazard schemes, lamentable failures, and sad loss of capital connected with the above rhapsodies it might reasonably have been expected that salutary lessons would be learnt therefrom; it seems, however, that fresh enterprises are now in view, and that untold riches are in store for the fortunate investors. Before these great prizes are sprung upon the mining world it may be interesting, and perhaps profitable, to enquire how it happens that with a process for the extraction of mineral said to be unequalled no further progress has been made after a trial of years in the very neighbourhood from which all these rhapsodies have proceeded and are still proceeding. At Holmbush, New Consols, and Wheal Newton, for example, unbounded deposits are, it is said, to be found of the class ores specially required. Mineral worth many pounds per ton, according to published assay, are being sold from Holmbush, at 40s. per ton. How then, with works erected at a fabulous expense in the neighbourhood, are not these ores turned to better account?
March 14. ——— INQUIRER.

REMARKS ON THE CORRESPONDENCE IN THE JOURNAL.

SIR,—It is with interest and amusement that I read the columns of your wide-spread Journal, and I may say that that attention has of late in no small degree increased after reading the different opinions of your numerous correspondents. Mr. John Watson's remarks on Wheal Grenville confirm what was plainly predicted and laid before the public a few months since by "Flat Rodda," and it is to be hoped that the proceedings at South Tolcarne will be crowned with similar results. "Justitia's" observations on Capt. Knapp's letter in the Journal of Jan. 20 appears to be a lame and one-sided argument, as everybody ought to know that is in the least way connected with mining, a person need not necessarily be a "kid-glove man" because he does not think that conducting the assays on a mining works is the best way the chief agent can render his services to the establishment, because all experienced men are aware, however ill-advised "Justitia" may be, that to make a quantitative analysis of a parcel of ore is a very secondary thing—indeed, the greatest difficulty I understand to exist—and, therefore, what requires the greatest amount of attention is first to find the ore, and when once landed at the surface to render it fit for the smelting operations, and for, I may say, that cheap process, at all events in England—assaying. I would by no means wish to infer, neither can I take Capt. Knapp's letter in such a light, that it is otherwise than useful for a mining agent to be capable to conduct analyses of ores especially for those seeking situations abroad, although I do contend and maintain that it is a branch of metalurgy that is of less importance to home miners than the science of developing and bringing forth to the smelting furnaces, or otherwise, marketable products of lodes or mineral deposits.

But to come to the purport of my encroaching on your space, it affords much pleasure to notice that the question of the tin mines in Cornwall smelting their own ore is almost beginning to be popular at the instigation of Mr. W. H. Rule, at Dolcoath adventurers' meeting. The carrying of this idea into effect would, doubtless, be of material advantage to the mines in particular and the county in general; as regards the time-worn hobby "where and how are you going to get a sale," there can now no longer be entertained the slightest misgivings in the minds of business men, one being naturally inclined to ask how the present smelters sell their produce? Why, of course, the same as a merchant would any other article of commerce—by offering it in the best market. That the smelters reap no profit on their transactions is an old history, which sensible men accept for what it is worth, and what there is to hinder a mining establishment from conducting that simple process more than a few private men remains for me to learn.

Mr. West's utterances at the South Caradon meeting show that that gentleman has the right view of the matter, and I would persuade—yes, even urge him—to add to renowned Phœnix that little addition to their otherwise complete works. In my opinion, we might go still further in this smelting question, and ask the reason why the copper mines should not smelt their ores also. True, the reduction of this metal from its ores is attended with a greater outlay in the first instance, and is altogether a more difficult and expensive process, but yet these are obstacles that have been surmounted by many a miner in foreign lands, and, doubtless, would be easily tided over in Cornwall also if once grappled with earnestness and with a will. For persons who are acquainted with the system of copper ore sales in Cornwall, locally known by the name of "ticketing," which term, by-the-bye, suits the proceedings well, they cannot possibly imagine anything more monopolising and injurious to the miner.

New Consols Company I should certainly think, ere they consider their works complete, will build a furnace to refine the copper precipitate, which would not cost more than about 200*l.*, enabling them then to go direct to the best markets uncontrolled and unfettered with their entire produce, and thus escape the clutching hands of the combined band of Swansea smelters. If such mines as Devon Great Consols or South Caradon once took this matter into serious consideration they could not possibly come to any other conclusion than that a great deal of the profit of their undertakings goes into the hands of the smelter, which, with an outlay of (say) 2000*l.* at the highest, and a bold endeavour, would place them not only on a free and independent footing, but also in a position of increasing the dividends.—*Norway, Feb.* 24. TERRÆ SILIUS.

CARDIGANSHIRE MINES, A.D. 1877—No. VII.

SIR,—Resuming my remarks from last week's Journal, we next have WEST ESGAIR LLE, where a great deal of money has been flittered away at surface, there being very few trials made underground. The little that has been done to the east and west in this grant shows indications that a good property can be opened out with proper management, and 3500*l.* I consider sufficient for this purpose. The last sensible thing achieved here was the erection of dressing machinery, and the laying out of extensive ore flooring, which, when completed, it was found that all the capital was expended, and the mine considerably in debt. This led to the liquidation of its affairs, and after a very heavy charge had been incurred in the winding-up, the property has been sold for about half the value of the machinery as it now stands. It is greatly to be deplored that such recklessness in carrying out the working of mines should be allowed, and only tends to the disparagement of legitimate mining here, and to bring an odious name on the county, which it does not deserve.

We next come to BRYN GLAS, to which grant has been added the adjoining sett of Bryn Neath, so that, properly speaking, we are explaining about the Bryn Glas Consolidated Mines. During the last few months a splendid water-wheel, 45 ft. diameter 4 ft. breast, has been erected, large pitwork has been put in from surface, and the mine drained to the bottom, or 26 fm. level. Very rich courses of ore have been worked away from this to the surface, so far as it has been opened to the west of the engine-shaft, a distance of about 50 fathoms. For the last few fathoms driven the lode has been left standing to the south, and from the very fine and productive lode, consisting of lead, copper, gossan, and quartz, to be seen on the surface 120 fms. in advance of the present forebreast of the 26 fm. level, I have every confidence that every fathom of this will pass through one mass of rich ore, and that this alone, by being properly worked, and the shaft deepened 10 fms. yearly, would make this united property one of the richest opened in Cardiganshire, but there are courses of ore discovered in the shallow adit level east, which is 200 fms. from the engine-shaft, so that when this mine is fully developed, which 2000*l.* would do with the ore that must be broken by driving the levels for laying out extensive stoping ground, there can be no doubt the party (for it is now worked by one gentleman only) will reap the reward he so justly merits. It is most gratifying to be able to state that what has been done here has been done in a good and substantial manner, and with strict economy; and not only this, all the machinery has been erected in a proper place for the full, speedy, and effectual carrying out of the necessary work at a minimum of labour and cost. I will merely add that it is most desireable that the mine should be opened out without delay, and that there is ground enough in these grants, nearly two miles long on the course of the veins, to open out several separate mines as rich as the Lisburne Mines proved to be.

The next mine we will take is CORBETTS, where a good course of lead ore has been found at surface at the junction of two lodes—one a caunter, and the other an east and west vein. Machinery is about to be erected for giving this a good trial, and there can be no doubt there will be a large quantity of ore found in depth on this discovery. There is ample water for driving machinery for pumping, winding, crushing, and dressing, and every probability of opening out a good paying concern. Nothing has been done either at Hirnant, Nantcaerhedyn, South Plynlimmon, Dinas, Tynyrhos, California, or the Bog Mines.

I intend in my next to commence with a few remarks on Llywernog Mine.—*Goginan, Aberystwith, March* 13. ABSALOM FRANCIS.

[For remainder of Original Correspondence, see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

Some orders have been received by the French iron trade, and work is far from being absolutely wanted; at the same time, there is not sufficient firmness and confidence to give strength to prices, and to impose more equitable terms upon purchasers. There are accordingly no changes to report in quotations. Merchants' iron and small iron continues in the most request; rails are more neglected than ever. It appears from official returns that the total production of iron of all kinds in France, including rails, only declined last year to the extent of 345 per cent., as compared with 1875; it cannot, then, be said that work absolutely failed last year, but it may fairly be affirmed that the work done was carried on without much profit. Several rather important adjudications for rails are expected to take place shortly, but no improvement in quotations is anticipated. A public sale of 10,000 shares in the Fillols Mines has just taken place; the shares were taken by the Bank of Belgium.

Copper has been a little better supported at Paris; English, best selected, has made 79*l.* 4s. per ton. The German copper markets have been generally quiet, and prices have experienced no change; there has, however, been rather more demand observable for copper at Hamburg. Tin has been very quiet at Rotterdam; the demand has been feeble, but prices have been maintained, as holders have not at all pressed sales. The Dutch Society of Commerce will hold a sale of tin at Amsterdam on the 28th inst.; this sale will comprise 23,500 ingots of Banca. At Paris and upon the German markets tin has experienced scarcely any change. Lead has not presented much firmness at Paris, but the German lead markets have been tolerably well supported. The Paris zinc market has shown a want of activity, but prices have not experienced any variation. The German zinc markets have presented rather a downward tendency.

A few contracts have been concluded this week in the Belgian iron trade, but they have been of comparatively very little importance. They present also great differences as regards prices; this fact forcibly illustrates the instability of business, and the need of the various establishments to procure work, no matter upon scarcely what terms. The current of orders is maintained from day to day without any diminution; this is something, but it is not quite enough. Some modifications are talked of at several of the rolling-mills with the view of securing a greater production and reducing the quantity of labour employed. Nothing is said, however, as to the re-lighting of blast-furnaces, although out of 61 in the Liége and Charleroi basins 38 have been blown out. Official returns show that the imports of iron minerals into Belgium declined in January, as compared with January, 1876. The value of the exports of iron of all kinds from Belgium in January also presented a decline of 55,240*l.* as compared with January, 1876. Official proof is thus afforded of the stagnation of which Belgian ironmasters have been long complaining. The exports of iron rails, however, from Belgium slightly decreased in January as compared with January, 1876. Belgian firms and companies are resolutely seeking for orders abroad, and the Willebroeck Workshops Company has just obtained a contract for all the iron bridges required in connection with a new railway in the North of Spain. A French engineer has invented a new iron sleeper for railways; the advantages claimed for this sleeper are the simplicity and solidity which the rail can be attached to it. The Communal Administration of Brussels has given out this week an order for 13½ miles of cast-iron pipes. A contract is about to be let at Bromberg for a very considerable quantity of steel rails. Contracts have been let this week for a large quantity of fish-plates, &c., for the Belgian State Railways.

The French coal trade has presented few features of interest during the week. The winter is practically at an end, and the spring is coming on, so that there is little likelihood of any advance in the prices of domestic qualities of coal, and just now quotations for these descriptions are lower than ever. It is believed, however, that prices have now reached their lowest point; they certainly cannot well go any lower. In the Nord and the Pas-de-Calais the situation remains generally the same; no large orders have come to hand, and dulness reigns supreme. From the basin of the Loir the intelligence received presents few points of interest; general dulness is here also the order of the day. Some recent heavy orders for steel rails which have been given out by the great French railway companies have certainly imparted some activity to the metallurgical works of the Loire basin, but it is difficult to say at present to what extent these orders will increase the consumption of the coal of the basin.

It appears from official returns that the quantity of coal imported into Belgium in January was 61,000 tons, as compared with 69,100 tons in January, 1876, and 56,000 tons, in January, 1875. Coke was imported into Belgium in January to the extent of 2400 tons, as compared with 18,000 tons in January, 1876, and 1600 tons in January, 1875. The exports of coal from Belgium in January this year presented a considerable contraction as compared with January, 1876. Thus they amounted to only 209,000 tons, as compared with 331,000 tons in January, 1876, and 313,000 tons in January, 1875. The new year has commenced badly. The February returns are not likely to present any material improvement, and Belgian coalowners are anxiously debating the serious question—When will the present depression end? The improvement of navigation is receiving just now a good deal of attention in Belgium and the North of France. The works of the canalisation of the French Meuse between the Belgian frontier and Selan have reached a very advanced stage. In Germany a project for a canal from the Rhine to the Meuse is receiving a certain amount of attention. Gas coal of good quality is now being delivered to the Brussels Gas Works at 10s. 5d. per ton.

Meetings of Public Companies.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

An extraordinary general meeting of this company was held on Wednesday at the City Terminus Hotel, Cannon-street,

Mr. W. C. HARVEY in the chair.

Mr. A. A. de METZ (the secretary) read the notice convening the meeting.

The CHAIRMAN said the object of the meeting was in the first place to confirm the resolutions that were passed at the extraordinary meeting held on February 23 last. He would at once move that those resolutions should be confirmed, and if there were no objection he would take them together. The following were the resolutions which were to be confirmed:—

Resolved—"That the Articles of Association be altered by striking out Article 25, and in lieu thereof substituting the following:—Article 25. Every member shall have one vote for the first five or less number of shares held by him, and an additional vote for every five shares held by him beyond the first five up to one hundred shares, and an additional vote for every ten shares beyond the first hundred shares, but no member shall be entitled to more than one hundred votes." Resolved—"That the Articles of Association be altered by striking out of Article 31 the words 'shares standing in his own name solely of not less than 100*l.* in value,' and in lieu thereof inserting the words 'the having in his own name solely on the register of shareholders of the company not less than 100 shares.'" Resolved—"That the Articles of Association be altered by striking out of Article 32 the words 'the sum of 500*l.* each,' and in lieu thereof inserting the words 'such a sum as shall be at the rate of 250*l.* for each director, but such remuneration shall be divided amongst them as they shall from time to time determine.'" Resolved—"That the Articles of Association be altered by striking out of Article 37 the words and figures '100*l.* in' and in lieu thereof inserting the figures '100.'" Resolved—"That the Articles of Association be altered by striking out of Article 41 the words and figures 'audit and notices (78 to 97 inclusive),' and in lieu thereof inserting the words and figures 'and audit (78 to 94 inclusive).'"

Mr. J. JOHNSTONE seconded the motion.

Mr. J. G. TAYLOR said the circular mentioned that three resolutions which were to have been proposed at the meeting on Feb. 23 respecting the raising of money were withdrawn in favour of one resolution which the directors were now about to propose. He wished to know the reason of this, and whether an arrangement had been made with Messrs. Selligman for a loan, and if so upon what terms? He thought the proposition to pay the directors 250*l.* per annum each before the shareholders were receiving any interest should not be passed. The shareholders having got out of the hands of Mr. Davis and his friends should be very careful to whom they entrusted the future management of their property.

The CHAIRMAN said Mr. Taylor's remarks were quite out of order, as they had nothing to do with the notice before the meeting. The reasons for the withdrawal of some of the resolutions at the previous meeting were clearly explained at that meeting. (Hear, hear.) If Mr. Taylor was not present during the whole of that meeting, when the explanations were given, it was not the fault of the directors.

Mr. TAYLOR again rose to speak, and was requested to "sit down," amid cries of "Order."

Mr. WALKER suggested that every shareholder should have a fair hearing.

Mr. TAYLOR asked why the company should make any more bargains without the full consent of the shareholders?—Mr. PEARSON replied that no bargains had been made so far as the directors were aware. If Mr. Taylor had been informed that any such bargains had been made his information was quite incorrect.

Mr. TAYLOR then protested against the proposed payment of 250*l.* to each of the directors.

Mr. PEARSON remarked that under the existing Articles of Association they were entitled to 500*l.*, but the directors had themselves voluntarily proposed that this sum should be reduced to the extent of one-half. So far they had received nothing whatever for their services.

Mr. WALKER and Mr. GARNETT supported Mr. Taylor in opposing the resolution fixing the remuneration of the directors at 250*l.* per annum.

Mr. STRATTON said he wished to put to the Chairman a question which would be of very material importance. He wished to ask whether they had not withheld important information for the shareholders with respect to the mine. He had facts to prove a statement which he had to make.

The CHAIRMAN called Mr. Stratton to order, remarking that the meeting was called for a specific purpose, and that until the resolutions were confirmed or negatived any discussion on the mine or its management would be quite irregular.

Mr. STRATTON asked if the shareholders were aware that at the present time their mine was leased for ten years?

After a discussion as to whether Mr. Stratton should be allowed to continue his observations, in the course of which Mr. Stratton said the mine had been leased for ten years to Mr. Hunter, a former director of the company, the CHAIRMAN stated that so soon as the special business for which the meeting had been called had been disposed of he would be happy to hear any remarks either from Mr. Stratton or any other of the shareholders.

As some objection had been raised to one of the proposed alterations, the CHAIRMAN put the resolutions *seriatim*, and they were confirmed, in the majority of cases, unanimously.

Some alterations as to sending out of notices and other important matters of detail having been confirmed,

The CHAIRMAN proposed "That Article 20 of the Articles of Association be repealed and expunged, and that in substitution for the same the following regulation be substituted:—'20. The board may, for time to time, borrow for the use of the company, on the security of debentures, promissory notes, or bills of exchange of the company, or upon such other security and upon such terms and in such manner and form as the board may deem expedient, and at such rate of interest as they may think fit, any sum or sums of money which they may think necessary for the purposes of the company, so that the total amount, exclusive of interest, which is or at any one time shall be owing, shall not exceed the sum of 100,000*l.*, and they may secure the moneys already borrowed, or which may hereafter be borrowed, or any part thereof, by a mortgage or mortgages of the property of the company, or any parts or part thereof, to such person or persons, whether as trustees or otherwise, and in such manner and form in all respects, and containing a power of sale and such other clauses as are usually contained in mortgage deeds, as they, in their discretion, shall think fit. The board may also increase or reduce the rate of interest on any moneys borrowed for the use of the company as they may, from time to time, find expedient, and may issue debentures of the company for all sums of money already borrowed for the use of the company, or which may be hereafter borrowed, either at a premium or a discount, and generally may raise any money for the purposes of the company, upon such terms in all respects as they shall deem necessary or expedient, and may cause or permit any mortgages, charges, debentures, or obligations made or issued by the company to be redeemed or transferred as they shall think fit.'" This resolution had been carefully prepared by counsel in the interests of the company, and it was in place of the three resolutions which were withdrawn at the previous meeting.

Mr. DURHAM seconded the motion.

Mr. TAYLOR suggested that the power to increase or reduce the rate of interest should not be given to the board. A certain limit of interest should be fixed by the shareholders.

The CHAIRMAN, in reply to Mr. WALKER, said that no agreement had been made as to the taking of the debentures if the resolution should be carried. The directors were not asking for fresh powers, as they already had power to raise 100,000*l.* on debentures, of which only 15,000*l.* had been issued. The resolution was merely to make the matter more clear than it was at present.

The resolution was carried, with three dissentients.

The CHAIRMAN then proposed a resolution with respect to reducing the quorum of shareholders from 20 to 15, as the existing number was found rather large, and upon one occasion only 19 shareholders attended, and the meeting could not be held.

Prof. VINCENT seconded the motion, which was carried, one shareholder only dissenting.

The next resolution was to alter Article 24 of the Articles of Association by substituting "42" for "43." This was carried.

On the motion of the CHAIRMAN, seconded by Mr. DURHAM, the following resolution was adopted:—"That there be added to the Articles of the company, immediately after Article 24, an Article in the words and figures following, namely—'24a.—The demand for a poll shall be in writing, signed by five or more members present at the meeting, and delivered to the chairman at or before its conclusion. When a poll is demanded it shall be taken either at the meeting or at such time and place and in such manner as to conduct, scrutiny, duration, and close of the poll as the chairman shall during the meeting direct, and in the absence of any direction or sufficient direction by the chairman, then as the directors may determine, and the meeting may, if requisite, be adjourned by the chairman to receive the result of the poll. The demand of a poll shall not prevent the continuance of

a meeting for the transaction of any business other than the question on which a poll has been demanded.'"

The following resolutions were also passed after a slight discussion:—That Article 31 of the Articles of Association be altered by expunging from the same the words "a general meeting," and by inserting therein in substitution for the same the words "the company by extraordinary resolution." That there be added to the Articles of Association, immediately after Article 34, an Article in the words and figures following, namely:—36A. If any of the directors shall be called upon to go abroad on the business of the company, it shall be lawful to the board to remunerate such director or directors for so doing out of the company's funds, in addition to the remuneration provided by Article 32. That Article 38, of the Articles of Association be altered by expunging therefrom the words and figures (58 to 74 inclusive), and by inserting therein in substitution for the same the words and figures ("58 to 62, and 64 to 74, both inclusive"). That there be added to the Articles of Association immediately after Article 38 thereof, an Article in the words and figures following, namely:—38. Any member desirous of being elected a director in the place of a director retiring by rotation, shall give to the directors or secretary notice in writing that he is a candidate for such office at least 30 days before the day of holding the meeting at which the election is or ought to take place, and no member shall be eligible to be a director in lieu of a director retiring in rotation, except with the unanimous consent of the meeting, unless such notice shall have been duly given; but this rule shall not apply to a director retiring from office by rotation who shall be assumed to be desirous of being re-elected, unless he shall have given notice to the secretary of a contrary intention."

The CHAIRMAN said, the business of the meeting being over, he would make a few remarks in reply to Mr. Stratton. The shareholders had by two circulars been urged to come to the offices of the company, where they would obtain every information in connection with the affairs of the company. Mr. Pearson had been in daily attendance at the office from December last, with the view to giving the shareholders personally all the information which they might desire. The shareholders were aware what a very critical position they were in when the mine was in the possession of Mr. Davis and his compatriot Mr. Patrick. The present board had succeeded in rescuing the mine from the hands of Mr. Davis, and had placed it in the possession of the shareholders. (Applause.) But for the action of the board the property would not have been worth sixpence, so far as shareholders were concerned. The directors were only just in time to prevent a complete robbery and a foul plot from succeeding. It would be dangerous, in the interest of the general body of the shareholders, to say too much in that room, for there were friends of Mr. Davis present; but he would again urge the shareholders to call at the offices of the company, where all the information desired would readily be given.

Mr. STRATTON: Then you will not tell us whether the Flagstaff Mine is leased for 10 years?

Mr. PEARSON: The Chairman has distinctly declined to answer.

After some further discussion of an unimportant character, the meeting terminated with a vote of thanks to the Chairman, and in acknowledging which the CHAIRMAN said the mine was working satisfactorily. The amount of ore sold in February was 1800 tons, and 65 tons seemed to be the daily average at the present time.

ARGENTINE MINING COMPANY.

A special general meeting of shareholders was held at the offices of the company, London Wall, on March 7.

Mr. GEORGE BATTERS in the chair.

Mr. J. E. DAWSON (managing director) read the notice convening the meeting, and the report of the agent, Capt. Coward, previously circulated, was submitted.

The CHAIRMAN said that nothing important had transpired since the previous meeting, but there had been an improvement in the northern part of the mine, and at the bottom of the Pique there was 50 fms. of ground, averaging 2 ozs. of gold to the ton, the lode being apparently over 26 ft. wide. The ends both north and south had been poor. He concluded by formally moving the confirmation of the resolution authorising the creation of 20,000*l.* additional share capital.

The resolution was put to the meeting and carried unanimously.

The CHAIRMAN, in reply to Mr. C. S. Hill, stated that the Argentine Government had behaved most liberally towards them in continuing to them the immunity from import duties upon machinery granted to a former, but defunct, company. He believed that a more liberal Government does not exist. Their conduct to the railway was also very praiseworthy.

Mr. SLOUS enquired whether there was any royalty?—The CHAIRMAN, in reply, said there was none. The property was freehold, and large enough for a dozen companies.

Mr. HILL asked whether the produce for January was satisfactory, and what had been done as to the debentures?—The CHAIRMAN considered that it was, as they got 100 ozs. in six days. Now that the resolution creating the new share capital was confirmed they would allot the debentures in the ordinary way. He would be much disappointed if they did not get a dividend this year.

A SHAREHOLDER enquired whether the Argentine Government derived any income from the company?—The CHAIRMAN said that indirectly they did. He would add that the Government constructed a road (70 miles) from San Juan to the mines, showing their desire to encourage the development of the country.

The meeting then separated.

HUSH EISTEDDFOD MINERA LEAD MINING COMPANY.

The statutory meeting of shareholders was held at the Lion Hotel, Wrexham, on Monday, March 5, when there were present—Capt. S Mitchell, J. Elltringham, T. H. Mitchell, Joseph Mitchell, H. Mitchell, G. Elltringham, J. Elltringham, W. Elltringham, J. Jordan, W. Gramegr, J. Gramegr, G. Thompson, S. Mitchell, jun., T. Williams, J. E. Powell, D. Bulman, W. D. Thompson, R. V. Ryrke.

Capt. MITCHELL was called upon to preside, and in opening the proceedings he said he did not expect to be placed in that position, and in being placed in it he felt rather out of his element. He was more of a practical miner than the Chairman of a company, and in the capacity of a working miner he should do all that he could to see that everything was carried out in an efficient and workman-like manner.

Mr. JAMES ELTRINGHAM (secretary to the company) then read the following report:—

Your directors, in submitting to you their first report, desire to set before you the position of the mine when it became the property of the company and what has been done up to the present time, leaving the future operations and prospects to be dealt with in the report of the manager, which will come before you at a subsequent stage of the meeting. When the purchase was completed it consisted of a sett of ¼ mile in length on the run of the lode, the western shafts and the levels driven to the east and west 20 yards in depth, with a whimsey at surface, and other appliances for dressing the lead ore. These workings being so near the surface, in winter time the water came in, through the spongy nature of the strata, in such force as to overpower the means then in operation to lift it out. The shafts were badly timbered, and altogether unsuitable for permanent work. The first efforts of your directors were to thoroughly repair the shafts, and to make one for drawing and the other for a footway, connecting them by a cross-cut to secure good ventilation, to erect an engine and heapstead such as might be required when the mine was fully developed. During these operations the workings were abandoned, and the water flooded the mine until it rose several yards up the shaft. About seven weeks since the engine was set going, and speedily drained the mine in this part, and since then regular work has been made in the western level, where the lode is yielding nice lumps of ore, such as you have been privileged to see to day. In the meantime your directors, alive to the importance of having a natural drainage, secured permission to open out the eastern shaft, which was sunk to a depth of 40 yards, and clear the level west, and cross cut towards the Hush vein. This was a work of great difficulty, owing to the cross cut having been driven into the Hush vein at this point, and, after having got the clearing effected, during the recent heavy rains, and owing to the soft nature of the ground above, there was a rush in of sand, the water carrying it along the cross-cut again almost as bad as when it was commenced. By perseverance, however, this has been cleared, and effectually stopped at the end of cross-cut, and a driving commenced on a side vein of great promise. The object in this is twofold—first, to secure the lead ore to the east of present workings at this depth; and secondly, when the western shaft is sunk to a lower level of 20 yards, and a communication made by this driving between the two shafts, the whole of the ground to the west will be drained, as there is a gullet or fissure in the strata through which the water flows into a subterranean river. Your directors are also in treaty for a lease of the present sett for a term of 21 years, thinking it preferable to the usual course of having a tack note of 3 years. Owing to the present universal depression of trade, all the shares have not been subscribed for. Your directors ask your co-operation with your friends to assist them in developing the mine, as they have every reason to believe that ere long the mine will be returning some profit on the past expenditure. In these works hastily sketched time and money have been expended, and the mine may be said to be only getting into order. However, the prospect is such as to encourage such as have already embarked to decide those who are hesitating, and to tempt those who have not yet been affected by the speculating mania.

Mr. W. D. THOMPSON moved the adoption of the report. This was seconded by Mr. D. BULLMAN and carried unanimously.

The SECRETARY then read the manager's report:—

March 3.—I have much pleasure in submitting to you my report on the present state and prospects of the mine. Since the formation of the company the different works have been vigorously prosecuted.—Eastern Shaft: This shaft has been opened and repaired to a depth of 40 yards from surface, whimsy erected, and ladder-road fixed. The 40 yard level cleared 75 yards, and tramway laid to the end. During the last fortnight 4 yards have been driven in the solid rock in a side vein, which is 2 ft. wide, and of great promise, containing spar, intermixed with lead ore. This I consider very important, being 20 yards deeper than the western workings, and 200 yards east of the engine-shaft, and being drained to this depth by a natural swallow in the lime rock will enable the driving to be carried on to meet and lay open the ore dipping in this direction from the shallow working westward, and will ultimately unwater the whole sett to this depth.—Engine-Shaft: This has been re-timbered and made good from the surface to the 20 yard level. The footway is also put in working order, to avoid travelling the engine-shaft. It is also beneficial for ventilation. The 20 yard level has been driven from shaft 75 yards. In the present end the vein is from 5 to 6 ft. wide, containing large blocks of lead ore—in fact, all the stuff is saved for dressing. The nature of the vein so shallow is bunchy, and I am informed that good deposits of lead ore have been passed through and left along the bottom of the level, and in places I have made trials, and find this correct; but as we find that by former workings the lead has been followed to the roof of this level no time will be lost in deepening the engine shaft that a fresh stope of ground be laid open, from which I have every reason to expect regular and profitable returns will be made. The 20 yard level, east of this shaft, has been driven 8 yards, although this driving is several yards north of the main part of the vein, still for the width of the driving bunches and faces of lead ore are found all dipping in the direction of the main lode. The engine has been erected and works admirably, and the shed and all connected therewith are complete. A new pithead and sundry wagons have been put up, dressing-floors and a small reservoir laid out and in course of completion. There is a parcel of ore in course of dressing, which will be daily increased. The prospects are very encouraging, and I firmly believe when we get the shaft down, and deeper levels open east and west, we shall meet with some very valuable deposits, and I trust have a valuable mining property.—J. MITCHELL.

The CHAIRMAN then said that most of those present had seen the working. It had been a difficult work to open. The operations had only been carried on four months, still they may now be said to be in good working order. The whole affair was very promising.

Mr. STAFFORD moved the adoption of the manager's report, which was seconded by Mr. POWELL, and carried unanimously.

Mr. JORDAN added a few words. He said he thought matters appeared to be all very satisfactory. He quite agreed with the manager's report, and with all that Mr. Elltringham and the Chairman had stated.

Mr. ELLTRINGHAM said that as far as his judgment went he had no doubt they had a good speculation. He had previously had more to do with coal mining than lead mining, but from what he did know of lead mining and what he had heard of their own mine, he had every reason to be satisfied.

Mr. STAFFORD also said he quite agreed with the manager's report. They had a good shaft as far as it had been sunk, and the mine had been started in a very satisfactory and workman-like manner.

Mr. WILLIAMS (Aberystwith) said he had seen something of lead mining about Aberystwith, and about the neighbourhood they were now in, and he was glad to add that he was well pleased with all that he had seen and heard that day; but if there was one thing more than another which convinced him that the mine would be a success, it was the connection with it of the Messr. Mitchells. Their names alone were to him a sufficient guarantee of success.

A vote of thanks to the Chairman brought the meeting to a close.

RED ROCK LEAD MINING COMPANY.

The first ordinary statutory general meeting of shareholders was held at the registered offices of the company, 4, Bishopsgate-street Within, on Saturday,—Mr. J. B. TIPPETTS in the chair.

Mr. JOHN OWEN (the secretary) read the notice convening the meeting.

The CHAIRMAN: Gentlemen, we have sent you notice of this meeting in obedience to the requirements of the Act of Parliament, which renders it necessary that the first meeting of every company established upon the limited liability principle shall be held within four months from the date of the formation of the company. What the object of the Legislature was in making this provision I confess I do not exactly know, and I can only surmise that it was in order that the directors and shareholders might become better acquainted with one another, and that the directors might have the opportunity of replying to the questions of any shareholders who might be desirous of obtaining information not already furnished to them as to the position and prospects of their property. This I am sure we shall be most happy to do to the best of our ability, and here I may at the outset mention (probably in anticipation of a question that may be put to me presently) that the actual lease has not yet been executed by the owner of the mine, Lord Lisburne, though we have the agreement, or "tack note" as it is called, which is an undertaking to grant a lease, and for all legal and practical purposes is as effectual and operative as the lease. The reason of this is one of those coincidences which are not uncommon in matters of this kind, and to which no importance is to be attached. In the first place Lord Lisburne has been travelling for some time past, and in the next place our solicitor, Mr. Kerly, I am sorry to say has been very ill, but you may take it that the lease is all but as good as executed. The original has been approved by his lordship's solicitor and engrossed, and the counterpart has been executed by your directors, and we now only await the exchange of documents, which will probably take place in a few days, to complete the transaction. The lease, I may tell you, is in the usual form and upon the usual terms of all the Lisburne leases. The period for which it is to run is 21 years, but as a matter of fact it is well known that these leases are always renewable. The time that has passed since the company was constituted has been so brief that I do not know that I have anything of importance to communicate to you beyond what appears in the latest report of our engineer, Mr. Kitto, dated the 5th instant, and which brings us up to last Monday. I think we may congratulate ourselves that it is as satisfactory as could have been expected under the circumstances, and in addition to that I may also further congratulate you that every shilling of our capital has been allotted to the calls which have been paid. (Hear, hear.) With respect to another matter in which the shareholders are concerned, I have to inform you that the guaranteed interest has been securely placed in the hands of the trustees, and that it was so placed by the vendors directly after the allotment, and will be ready when required for payment to the shareholders under the terms of the guarantee. I believe these are all the salient points I have to refer to now, and will not occupy your time longer than for our secretary to read our engineers' report, which may be of interest to shareholders who have not received copies of it.

The SECRETARY then read the report, which was as follows:—

Llandilos, March 5.—So little time having elapsed since the formation of this company and the commencement of underground operations, I am unable at the present moment to report to you any considerable progress in the development of new ground, or that any very important discovery has been made, and more particularly so as by far the greater part of the time that we have been at work has been occupied in repairing the main engine-shaft and the principal levels, and putting the same in proper working condition, and this was absolutely necessary before the further prosecution of the underground workings could be safely carried on: these repairing operations have now, however, been pretty well brought to a close, and active measures have been taken for opening out new ground, not only by sinking the main engine-shaft to a deeper level, but by extending as well the present levels both east and west on the course of the lode, particularly those towards the bottom of the mine, and I hope from this time forward to be able to make good progress in works of development, and in due course to report to you corresponding discoveries. We have been driving the 60 fm. level west for some time past, and have now resumed the driving of the same level east; in the former we have had some nice bunches of lead ore, and the end never looked better, or presented more encouraging prospects than it does at the present time. We have commenced to cross-cut the lode in two or three parts of the mine, but up to the present have made no discoveries of importance, except in the 60 west, where we have intersected a nice bunch of ore. The shaftmen are now engaged in cutting lodge at the 60, and will shortly resume the sinking of the main engine-shaft for another and deeper level. At surface we have built a new smith's shop, and have commenced to put the dressing machinery in order, and in three or four months we shall be in a position to begin dressing operations, and I hope from that time to make regular sales of ore. I may add, in conclusion, that the prospects of the mine have, so far, correspondingly improved with the progress made, and I have not the least doubt that they will continue to do so in the future.—JOHN KITTO.

A SHAREHOLDER: I see your engineer says, "Ladies and gentlemen;" have you many ladies on your list, Mr. Chairman? Ladies are said to bring much good luck to a mining company.—The CHAIRMAN: Oh yes, several.

Another SHAREHOLDER: May I ask how many proprietors form a quorum in your company?—The SECRETARY: In the absence of our solicitor I may say that five is the number to form a quorum at any general meeting, but how that might be at a special meeting, or at a meeting for the purpose of passing accounts, I cannot tell you at the moment without referring to the Articles of Association.

Mr. ROSS: I do not know if you intend to move a resolution at this stage of the proceedings. I think it is usual at these statutory meetings that the Chairman, as required by the Act of Parliament, should, as he has done, make a verbal report to the shareholders of the state of their affairs; and looking upon the engineer's report that you have heard read as a part of the Chairman's address, I beg to move that the Chairman's words be taken down and printed and circulated among the shareholders, unless the Chairman will move it.—The CHAIRMAN: I will move that.—Mr. ROSS: Then I will second it.—The resolution so moved and seconded was carried unanimously.

A SHAREHOLDER: I see that Mr. Kitto says in his report that "the 60, driving west, never looked better." We have heard that Mr. Brookes, who I see is present, has lately been down the mine, and some of us would like to hear a few words from Mr. Brookes as to what he thinks of it.

Mr. BROOKES: It is quite true that I have been down the mine recently, and I think it is important that you should bear in mind that we have much new ground. The way down to the mine is not like going down an ordinary shaft; it is a wide, open space, and as you descend you see many places where good ore has been left to prevent the sides falling in. I took my hammer and knocked off pieces here and there, and it seemed to me that there was ore upon all sides and in every direction. I called Mr. Kitto's attention to this, both when I was down in the mine and when I came up, and I can tell you honestly that I believe this is a very good speculation indeed.

The CHAIRMAN: Did you go down to the 60 fathom level?—Mr. BROOKES: Yes, and before that we put the men in to blast a piece of the rock in the bottom level, and I should think that the grey part of the lode in the bottom level was about the breadth of this (showing a piece of paper about 12 in. wide).

The SECRETARY: This is one of the pieces that came from the bottom level (producing a piece of ore weighing ½ cwt.)

Mr. BROOKES: Yes, it seems to be a sort of rib of ore running through the level, as far as we could then judge, as there was a good deal of water in the bottom, owing to the shaft repairs. What struck me as a most curious circumstance was that such a good lode as this should ever have been left, and I think our engineer is quite justified in saying that the "end never looked better." (At the request of several shareholders Mr. Brookes then pointed out upon the plan and sections the position of the lode he referred to, and its bearings with respect to the lodes of the various mines in the vicinity).

Dr. DRADGE: I suppose, Mr. Chairman, before committing the shareholders to this speculation you took every means in your power to satisfy yourselves that there was every probability of their getting a good return for the price paid for the mine?

The CHAIRMAN: Yes, and I may tell you that in addition to the opinion of our engineer, Mr. Kitto, in whom and in whose judgment I believe we have all justly perfect confidence, we have also had the advantage of that opinion being corroborated by Mr. Walter Eddy, a mining engineer of very long standing and great experience, especially in the locality in which our mine is situated. That being so, we feel that we are fully justified in meeting you to-day and stating that under Mr. Kitto's supervision the work will now be pushed forward as speedily as possible, and for myself I have only to add that if I had not felt satisfied that I was justified in taking my seat as Chairman of your board to-day I should not have been here.

A SHAREHOLDER: I suppose if you will do for the shareholders as you would for yourselves that is as much as we ought to look for.

The CHAIRMAN: That you may depend we shall do, but if we are asked whether we are prepared at this moment to give you our guarantee of your absolute success we shall have to reply that that is a different matter. We shall do the best we can, and we hope successfully, but there is always a partial amount of speculation in undertakings of this character.

Mr. ROSS: Yes, everybody who has embarked in a mine knows that, also that success is hindered from want of management.

The CHAIRMAN: If no other gentleman desires to make any observation I think we may now conclude the business of the meeting.

Mr. BEDFORD: I think it right before we separate, Sir, to say that I think we have good and sufficient reason to congratulate ourselves upon the success we have achieved up to this time, and upon the position—the proud position, I may say—in which we now find ourselves. It is rightly satisfactory to know that this company has been started as a company ought to be started, though I am sorry to say we have not to go far to learn that there are many companies that have not the same cheerful prospects before them that we have. It is also satisfactory to hear you state on behalf of the shareholders that you have taken every pains in your power to ascertain that you were purchasing a thing you felt justified in recommending them to go into, and also that the capital of the company has all been subscribed for and allotted. If there has been any drawback in the general satisfaction, it would be, I should think, that so many applicants for shares had (as I understand) to be disappointed. When we are informed that the applications were for three times the number of shares to be allotted, any of us who have had anything to do with companies will understand that it places the directors in an unpleasant position—that is to say, it makes them appear to have declined applications in many instances, when in reality had they possessed the power they would have been but two happy to have complied. On behalf of myself and my fellow-shareholders I think we may further congratulate ourselves in having not only a board of directors in whom we can place the fullest reliance, but also a manager in whose judgment, integrity, rightmindedness, and perseverance, we can at all times feel the greatest confidence, and whose suggestions we should very rarely indeed be wrong in adopting. Another very pleasing feature in the concern is that not only have all the shares been allotted, but that all the money that has been subscribed is in hand—that is to say, beyond the comparatively small amount paid or to be paid on account of the purchase, there is nothing further to be deducted from the fund in hand. Accordingly, out of the amount of capital subscribed there will be abundant money left for the purpose of the mine. Again, we have the satisfaction of knowing that we have a mine which may, I think, be justly described as producing ore at this moment, and fitted with machinery to place the ore upon the market as soon as we are in a position to raise sufficient to do so to advantage. I cannot help saying, in conclusion, that I think the time that has elapsed since the company was started has been well made use of in bringing the mine to the condition it is now in. From what I know of the property, and I make it my business to know all that can be known, I can say there was a great deal of preliminary work to be got through in clearing away old obstructions before we could be said fairly to get to work on our own account. That I am happy to hear has all been done, and after what I have heard from Mr. Kitto's report and from Mr. Brookes's, in his remarks to us here to-day, I believe there is every prospect that in a very short time we shall be selling ore in the market.

The CHAIRMAN: Mr. Kitto gives us to understand that in a few months from this time he hopes to be sending ore to market.

Mr. BEDFORD: Yes, and seeing he is an authority in whose judgment we can place the fullest confidence that is very satisfactory.

The proceedings terminated with a unanimous vote of thanks to the Chairman and directors, which the Chairman duly acknowledged.

MONKLAND IRON AND COAL COMPANY.—The result of the company's operations in 1876 is that the profit, after meeting all charges belonging to the year (including 10,000*l.* depreciation), amounts to 8709*l.* This represents a dividend of between 4 and 4½ per cent. upon the preference shares, but as this year's revenue has had further to meet the balance of 9398*l.* brought forward from 1875, the net result is that this balance has been reduced to 668*l.*, which is carried forward against the year now current, the preference shareholders having received 4½ per cent. out of the reserve. The expenditure on capital account for this year has been 12,467*l.* It is estimated that the fields held on lease by the company contain sufficient black-band and clay-band ironstone to supply the nine furnaces as at present worked for 15 years, and coal for the annual production of 80,000 tons pig iron, and 2½,000 tons malleable iron for 45 years. The total indebtedness of the company is 101,860*l.*, while the floating stocks and cash due to the company amount to 78,595*l.*

INDIA-RUBBER, GUTTA PERCHA, AND TELEGRAPH WORKS.—The report for the year 1876 states that a net profit of 30,764*l.* was made, which has more than sufficed to clear off the debit balance of 24,183*l.* in 1875. The balance of 8905*l.* is carried forward. The auditors again press the necessity of a reserve fund being created, and urge as a reason that they "cannot put a value on the 'shares in other companies' amounting to 301,908*l.*, or on the dividend on a portion of such shares taken credit for in the profit and loss account."

For remainder of Meetings see to-day's Journal.]

COLLIERY READY RECKONER.—A very complete and useful little ready reckoner for colliers and colliery pay clerks has just been completed by Mr. JAMES IRELAND, whose labours in this direction have already been before the public. This reckoner and wages calculator contains tables showing how much the weight of any quantity of coal, shale, ironstone, or other mineral amounts to at any given rate from 1s. to 7s. per 20, 22½, and 24 cwts., as well as tables of wages for weeks of 54, 57, and 60 hours. The book, which is published by Mr. J. Davis Miller, of Glasgow, will be the means of preventing many disputes between pay clerks and colliers, and is changed so cheaply that every collier may possess himself of a copy. It is extremely simple, and will save much tedious calculation.

COPPER ORES.

Sampled February 28, and sold at Swansea, March 13.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Cape Ore	78	27¾	£19 8 6	N. Quebrada	58	20½	£13 13 0
ditto	78	27¾	19 12 0	Kurilla Ore	59	21½	15 1 6
ditto	78	27¾	19 12 0	ditto	59	21½	15 1 6
ditto	78	27¾	19 7 6	ditto	58	12	8 5 0
ditto	78	27¼	19 10 6	ditto	8	16¼	11 4 0
ditto	4	27	19 5 0	ditto	33	16½	11 6 6
ditto	67	29¼	21 3 6	Cronebane	93	2½	1 13 0
ditto	67	29⅝	21 2 0	ditto	78	2¼	1 3 0
ditto	66	29⅞	21 17 6	Betts Cove	100	8½	6 2 0
ditto	58	36	25 6 0	Berehaven	50	12¾	9 4 0
ditto	58	36	25 4 0	ditto	45	12¾	9 4 0
ditto	58	36	25 7 0	Copper Ore	58	5	3 2 0
N. Quebrada	59	20½	14 2 6	Copper Matt	8	9½	8 10 0
ditto	59	20½	14 0 0	Australian	6	10¼	7 0 0
ditto	59	20⅞	13 18 6	Copper Prec.	5	64¼	45 10 0

TOTAL PRODUCE.

Cape Ore	768	£16,293	8 6	Berehaven	95	£874	0 0
New Quebrada	2·5	3,281	5 0	Copper Ore	58	179	16 0
Kurilla Ore	217	2,720	13 6	Copper Matt	8	68	0 0
Cronebane Ore	171	243	3 0	Australian Ore	6	42	0 0
Betts Cove Ore	100	610	0 0	Copper Precipitate	5	232	10 0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
P. Grenfell and Sons	254	£ 4,041 18 6
Nevill, Druce, and Co.	136	2,972 17 0
Vivian and Sons	447	2,294 5 0
Williams, Foster, and Co.	234	4,580 11 0
Mason and Elkington	208	2,474 2 0
C. J. Lambert	118	1,778 17 0
Sweetland and Co.	66	1,377 15 0
Landore Smelting Company	200	4,424 10 6
Total	1663	£24,544 16 0

TOTALS AND AVERAGES.

	21 cwts.	Produce.	Price.	Per unit.	Standard.
Whole sale	1663	20¾	£14 15 2	14s. 1½d.	£91 18 0

COPPER ORES.

Sampled Feb. 21, and sold at Tabb's Hotel, Redruth, March 8.

Mines.	Tons.	Price.	Mines.	Tons.	Price
Mellancar	92	£3 0 6	West Tolgus	40	£6 17 6
ditto	85	3 15 0	South Crofty	71	2 15 6
ditto	60	3 18 0	ditto	61	2 12 6
ditto	51	7 15 6	ditto	50	2 14 0
ditto	45	3 2 6	East Pool	58	3 15 6
West Seton	74	3 16 0	ditto	31	3 12 0
ditto	71	4 0 6	ditto	18	6 0 6
ditto	60	4 10 6	South Carn Brea	64	4 0 6
ditto	52	4 18 0	Carn Brea	33	4 3 6
ditto	48	4 4 0	ditto	25	2 4 0
ditto	17	2 16 0	Wheal Grenville	10	6 19 0
ditto	13	4 4 0	Wheal Agar	7	5 1 0
West Tolgus	71	6 11 6	East Grenville	6	0 18 6
ditto	63	4 18 6	Carn Camborne	4	1 0 0
ditto	61	6 11 6			

TOTAL PRODUCE.

Mellancar	333	£1368	4 0	Carn Brea	58	£ 192	15 6
West Seton	330	1376	1 6	Wheal Grenville	10	69	10 0
West Tolgus	235	1453	3 6	Wheal Agar	7	35	7 0
South Crofty	182	492	3 0	East Grenville	6	5	11 0
East Pool	107	438	11 0	Carn Camborne	4	4	0 0
South Carn Brea	64	257	12 0				

Average standard £101 9 0 | Average produce £4 5 0 6/8
Quantity of ore 1336 | Quantity of fine copper 92 tons 6 cwts.
Amount of money £5642 18 6
LAST SALE.—Average standard £106 2 0 | Average produce 6/8
Standard of corresponding sale last month, £ 99 19 0—Produce, 7/8

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	214	£1023 2 0
Grenfell and Son	152	698 0 0
Nevill, Druce, and Co.	207½	937 11 6
Williams, Foster, and Co.	20	109 9 6
Mason and Elkington	214	1078 1 6
Charles J. Lambert	416	1503 8 3
Sweetland, Tuttle, and Co.	103½	403 5 9
Total	1336	£ 5692 18 6

NO SALE on Thursday last, March 15.

Copper ores for sale at the Royal Hotel, Truro, on Thursday next—Mines and parcels.—Devon Great Consols 820—South Caradon 470—Marke Valley 330—Gunnislake (Clitters) 297—Glasgow Caradon 210—Hingston Down 188—Brookwood 185—Bedford United 156—East Caradon 115—West Maria and Fortescue 104—Wheal Russell 70—Wheal Emma 40—Okel Tor 10.—Total, 3025 tons.

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ENGINEERS, BANBURY,

MANUFACTURE

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Steam Engines

With Gear for Winding, Pumping, and Ore crushing.

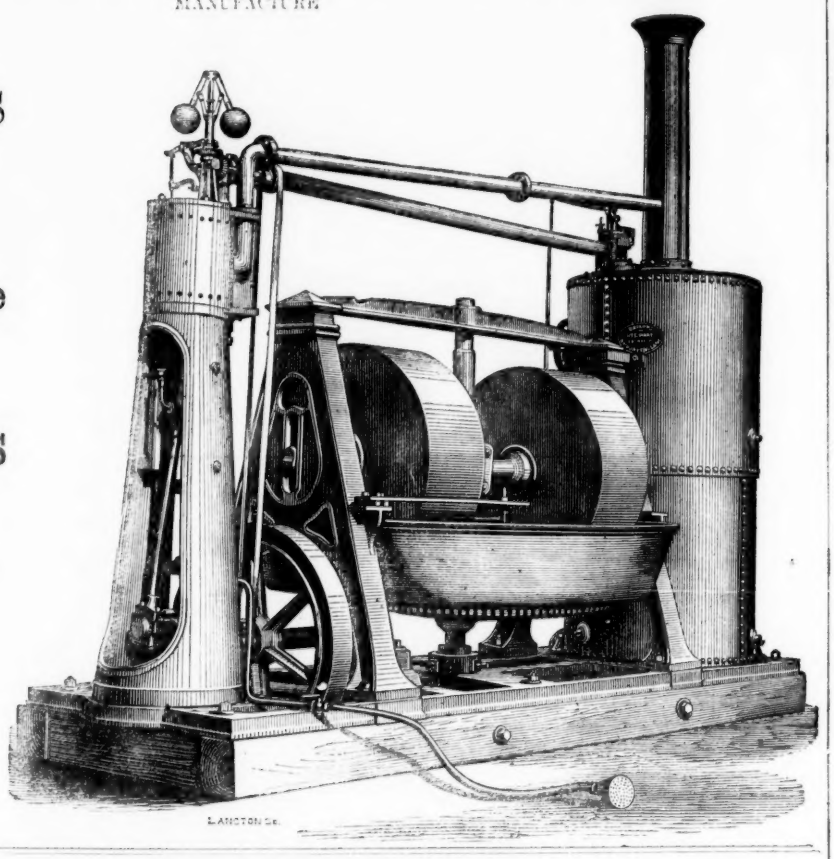
ALSO,

COMBINED MILLS and ENGINES,

with or without

BOILERS,

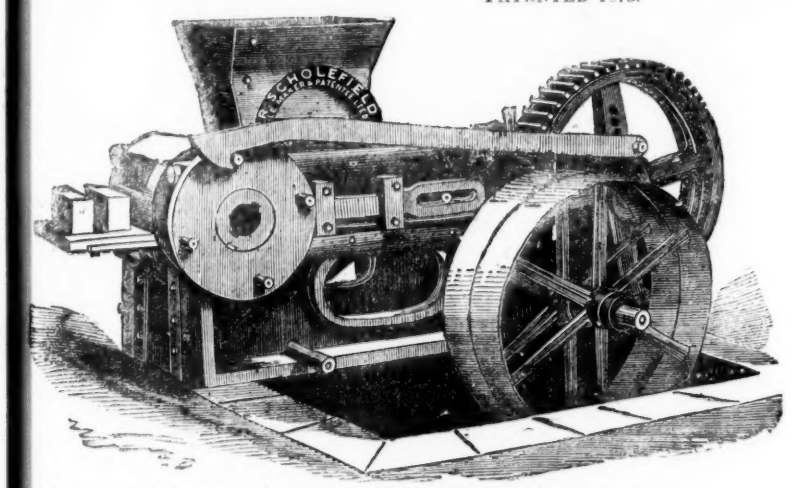
for Grinding Cinders, Sand, Mortar, &c.



R. SCHOLEFIELD'S

LATEST PATENT BRICK-MAKING MACHINE.

PATENTED 1873.



R.S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless), is at once made into bricks, at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	£0 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 5s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0
Total cost of making 10,000 pressed bricks	£1 5 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.
As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

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"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

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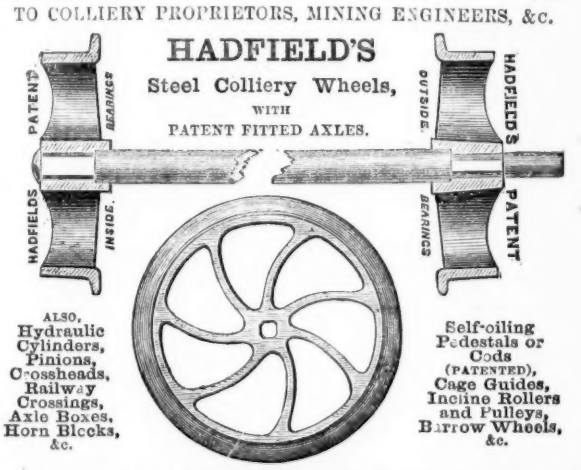

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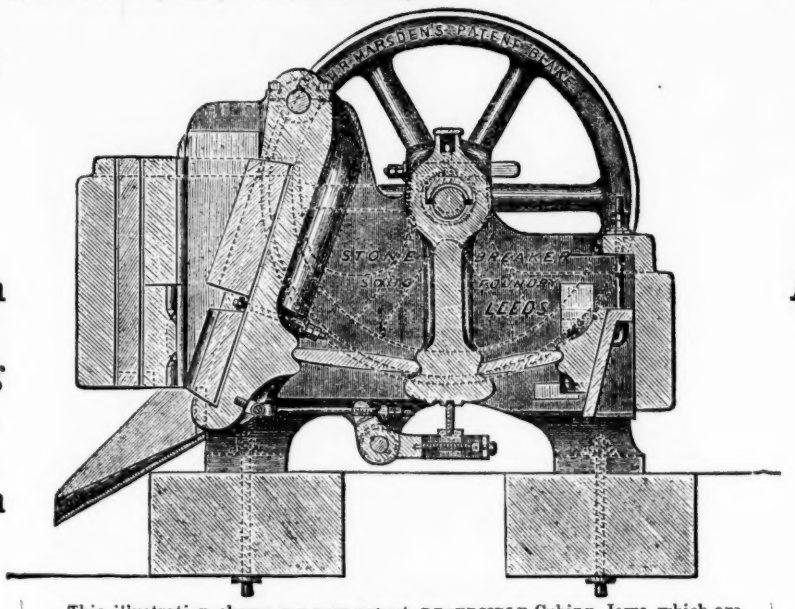

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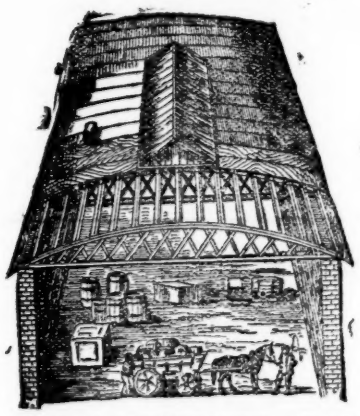

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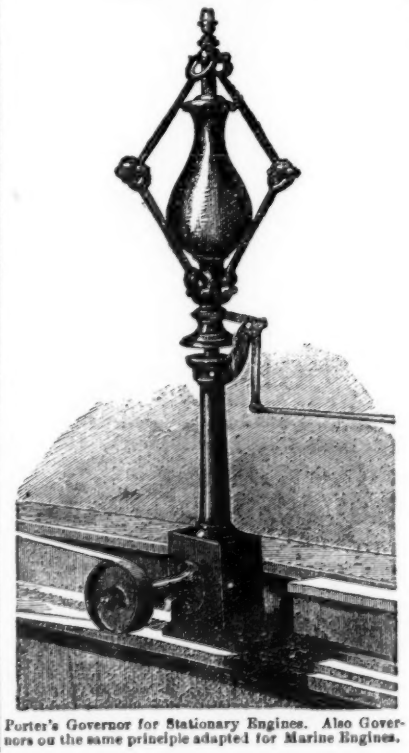

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